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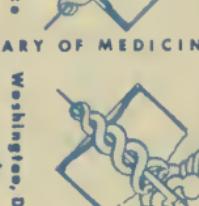
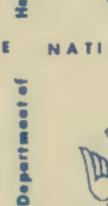


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SUBSTANTIALISM:

OR,

PHILOSOPHY OF KNOWLEDGE.

BASED UPON

THE PERCEPTION THAT THE EMANATIONS WHICH ARE CONTINUOUSLY RADIATING FROM THE FORMS OF SUBSTANCE THAT MAKE UP THE OBJECTIVE UNIVERSE ARE *SUBSTANTIAL THOUGHT-GERMS*, WHOSE DOINGS, OR MODES OF MOTION, WITHIN THE ORGANS OF SENSE BY WHICH THEY ARE SUBJECTED, REPRESENT THE SPECIAL QUALITIES — TANGIBLE, SAPID, ODOROUS, LUMINOUS, AND SONOROUS — OF THE FORMS TO WHICH THEY ARE FRUITAL.

BY JEAN STORY.

"When man shall have outgrown all his Idols, he will understand Nature." — *Bacon.*

BOSTON:

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PREFACE.

THE chief desideratum in the discovery of facts is a truthful interpretation of what they reveal. To obtain this is the especial mission of speculative philosophy. Facts of themselves are *unrevealed truths* to him who can not or does not perceive their *real* characteristics or practical values. The doctrine of substantialism, or philosophy of knowledge, is presented to the world simply as new interpretations of the facts upon which our present scientific theories are based, in the sense that the self-testimony of things, their *being* and *doing*, is accepted as the highest proof possible as regards the actuality of their *constituent properties* and their *uses* in the kingdoms of nature. Although the basis of our doctrine is radically different from that upon which any other system of philosophy is founded, yet we feel assured, that, in our treatise on essential substance, it is clearly shown that the advocates of "substantial agents," and the advocates of "motive forces," can and must harmonize their different conceptions of natural phenomena on the common ground that the former are *causes*, and the latter are what the former *do* or *effect*. The fact that, in the degree man's mental prospective is extended by the increasing

maturity of the species, in that degree he recognizes an undertone of harmony vibrating through the entire cycle of natural development, is Nature's guaranty that the advocates of antagonistic theories regarding good and evil must and will gradually approach a common axis of thought regardless of diversity in native talent or educational bias.

As some of our interpretations of nature accord with deductions rejected as obsolete, others differ from deductions popularly accepted, while others reconcile theories apparently antagonistic, and still others are evidently original, we regard it as obligatory on our part to record some of the influences, especially the consecutive perceptions or intuitive judgments, that induced us to embody them as a *new system of philosophy*.

From early childhood we intuitively recognized our kinship to nature. Although indefinitely apprehended, yet every thing seemed to whisper that we were whatever we sensed; that the good and beautiful in nature, which we so ardently loved, were akin to that within our nature by which they were beloved. Accepting our own nature, with its ever-ready preference for goodly acts, as a criterion, it was impossible for us to believe in the "natural depravity of the human heart." And we found it equally impossible to believe in certain scientific dogmas; although, being accepted by public opinion, we were forced to memorize them in our studies. We seemed to feel their falsity instinctively, and at the same time felt assured that the phenomena involved would be truthfully interpreted in the future.

Our great love of nature found its earliest satiation in studying astronomy. Although taught that the

laws of mind were utterly distinct from physical laws, yet our next favorite study was that of metaphysics. Later in life we were strangely, as well as strongly, impressed by the discovery that these two sciences treat of substance in its extremes of magnitude and minuteness,—its extreme relationship. This discovery not only afforded us the needed counter-bases, or centre and circumference, wherewith to *begin* the process of concepitive creation; but it revealed the fact that the range of our metaphysical powers extends from the innermost of our physical being to the outermost of physical existence, thereby proving that each man's objective universe exists within his subjective universe; or, in other words, that they are one and the same, and involve the same laws in *their extreme relationship*. In projecting our subjective powers from the foci of special sense outward, we perceived that the phenomena of nature procreated three inseparable sensations,—that of substance, objective and non-objective; that of force, static and dynamic; and that of condition, spacial and temporal.

As this triune conception of the sphere of nature included the essentia and differentia of each of these inseparable parts, they were readily identified and classified, as (1) substance, (2) its modifications or properties, and (3) that by which it is modified.

From the known fact, that, when different elements are brought within the same boundaries as a gaseous mixture, they become either equally diffused as a gaseous compound of uniform tendency, or one portion is precipitated as a nuclear compound, and the other portion is rarefied as an atmospheric compound, we perceived that the motive forces manifest in these

changes consisted in the actual movement of the *substance* of the elements. Thence reasoning from the fact that every known element, whether classed as ponderable or imponderable, possesses momentum, the especial quality of which is necessarily its quantity of substance multiplied into its motive force, resistant or persistent, we perceived that the qualities of each *form of substance*, regardless of its objectivity, were of necessity the sum of the qualities of its constituent elements in their combined or organic capacity.

And, as different elements are invariably different in density or specific gravity, we perceived that substance must needs be intrinsically elastic or alive, and essentially homogeneous in the sense that equal quantities condensed within equal areas of space are equal in tension or suppressed force as regards their condensability or expansibility.

Thence taking it as granted that their difference in quality consisted in their different degrees of tension and in the directions to which their movements tend, we perceived that all elements must needs be, as assumed, quantitative equivalents of substance whose essential elasticity is variously modified by condensation or expansion within different areas of space as spherules of gravity. Again: reasoning from the known reciprocal interchanges between their constituent essences, we perceived, that, in the aggregate, the substance of the earth must needs be condensed in the degree its atmosphere is expanded, compared with a medium density; and, by parity of reasoning, we perceived that the elemental spherules so condensed below par that their expansibility causes them to ascend *from* the earth, and those so expanded above par that they are forced by

super-pressure to condense and descend to it, are *per se* the substantial agents involved in what is termed centrifugal and centripetal attraction, or terrestrial gravitation; and recognized the same law of force in the reciprocal activities, between all the inter-solar planets and their atmospheres, and between the sun and its atmosphere (the sum of theirs), and also in what is termed chemical action and re-action between the spherules of denser and rarer elements.

This included the perception that it is the combination of their equal momenta from diametrically opposite directions that forces the planets and their atmospheres to revolve in mediate directions around their own axes of gravity, and also around the axis of solar gravity.

As the times of the revolution of the primaries are proportional to their mean distances from the sun, their common nucleus, we perceived that the revolution of the secondaries around their respective primaries must needs be an inter-repetition of the same process, and that, in like manner as primaries are the nuclear equivalents of different stratifications of the sun's atmosphere, so secondaries are the nuclear equivalents of different stratifications of the primary's atmosphere around which they revolve.

And reasoning from the fact that the super-nuclei of nucleated cells, when viewed through the microscope, are found to revolve around their common nucleus in like manner as the planets revolve around the sun, we perceived that this process of repetition was necessarily universal, hence that each elemental spherule is a repetition of the earth and its atmosphere; its co-equivalents of nuclear and atmospheric or counter-spacially

conditioned substance being *per se* its equivalents of centrifugal and centripetal force; while the spherules of compounds are repetitions of the solar system up to the earth's altitude therein. That is, elemental spherules sustain the same relation to the compound spherule they constitute, that planet-spheres sustain to the solar sphere *they* constitute; each compound spherule having one common basic nucleus to which the elemental nuclei are superbasic, all of which latter are arranged around the former in accordance with their specific gravity. In virtue of being quantitative equivalents, the denser the nucleus, the rarer the atmosphere, and *vice versa*; the metals, or densest, being atmosphered by empyreal elements, the rarest.

Thence, reasoning conversely, we perceived that the sphere of nature must needs be arranged in the same order; the centrifugal force of the nuclear department, spherical and spherular, being the equivalent of the centripetal force of its atmospheric department.

Again: reasoning from the fact that the gravitational force of substance, whatever its range of extension, is invariably spherical in the sense that every form of substance, all of which are *forms of force*, has a definite centre and a definite circumference, within which its formal activities are individuated, regardless of progress in extension by ingrowth, we perceived that the sphere of nature as the sum of formation must needs have a definite centre and a definite circumference, regardless of the extension of primordial or unformed substance as the content of infinite space. This, because every form of force which includes both its nuclear and its atmospheric equivalents of gravitational substance exists as such in virtue of the exact dynamic equilibrity between

the centrifugal force of the former and the centripetal force of the latter; the super-pressure of the outermost atmosphere being the prime initiatory force within each.

In studying the modifications of essential substance in its various and ever-varying states of density, we perceived that gravital force was purely its tendency toward equal density; the *modus operandi* being its ascension from all *forms of substance* condensed below intermediary, and its descension from all forms expanded above intermediary.

Recognizing the earth and its atmosphere as counter-spacially conditioned forms of substance essentially homogeneous, we perceived that their aggregation and continued existence as such were due to the exact dynamie equilibrio between their constituent elements, whose existence, in turn, was due to the counter-spacial condition, and consequent counter-elasticity or vitality, of their nuclear and atmospheric essences.

As empyreal fluids — heat, light, electricity, and magnetism — are the ultimates of form cognizable by human sense, we recognized their spherules as the ultimate germs of form, and recognized their alternate expansions and condensations under continuous but ever-varying alternations of lesser and greater super-pressure as the ultimate pulsations of life; and also recognized the actions and re-actions between forms of substance plus and minus in density, termed “the mechanical powers of nature,” as the result of the spacial changes in their ultimate germs which pass from each to the other during temporary contact.

Reasoning inversely from our perception that the earth's sphere's orbital locomotion was due to its assimil-

lating as nutriment the empyreal essenees of lower and higher altitudes of the solar sphere in continuous alternation, whose alternate expansions and condensations during their introversion resulted in the increasing axial rotations of its consecutively more interior strata, we perceived that this same wheel-and-axle power was involved in the locomotion of animals.

That is, the expansion of the denser essenees forced into or absorbed by their feet during contact with the earth induces their elevation; while the condensation of the rarer essenees absorbed by their feet during elevation induces their depression. As is readily perceived, the locomotion of all animals involves the oscillatory and rolling process manifest by our planet in its passage through space. Perceiving that the elastic vitality of these counter-tending germs was *per se* expansion and condensation, we recognized them as the essential representatives of the two sexual principles manifest in the genesis of complex organisms,—the plus condensed, or nuclear, being female or negative, the minus condensed, or atmospherie, being male or positive; and recognized their spacial disparities as the representatives of two planes of maturity, that of the earth's centrifugal essenees being minus mature, or female, from their lesser freedom to move atomically; that of their atmospherie counterparts being plus mature, or male, from greater freedom to move, but less complex in their movements. This, because still out-tending from the sun, the nucleus of the sphere within which the nucleus of the earth-sphere subsists.

Their complexity as centripetal germs concentrating towards the centre of a younger sphere being intermediate between that of the sun's centrifugal germs

and those of the earth, they are intermediate as regards maturity.

This perception that change in motive direction is change in the sexual functions of the substance involved, in addition to the perception that the properties of substance are its spacial and timal conditions, not only accorded with our perception that substance is homogeneous as regards its elastic vitality, but it led to the discovery that all forms of substance are necessarily compounded of centrifugal, or female germs, and centripetal, or male germs; their utter inseparability as *forms of force* being due to the exact counter-equivalence of their minus and plus maturity and their plus and minus complexity. It also included the perception that the identity of forms is purely ideal in the sense that their qualities — all that is known or knowable of any thing — are the spacial and timal modifications of the substance through which their forms of force, their being and doing, become manifest as sensible qualities on the consequently more refined and more complex planes of sense-perception, through which *they* are progressing in refinement of form and in complexity of movement. As the range of this ideal prospective out-reaches indefinitely, we recognized primordial substance as increasingly mature and minus complex in this order, and perceived, that in the order of its descent and nucleation at the centre of infinite gravity, — whence, by a reversion of its spherical position and spacial condition, it became centrifugated, — the centrifugal germs were decreasingly mature as the bases of consequently more inner or later interspheres, but correspondingly more complex in their motive directions. That is, they were deficient in centripetal force from lack of space

in the degree the centripetal germs from consecutively more outer atmospheres were deficient in centrifugal force from an excess of space. The combined momenta of these centrifugal and centripetal germs being intermediate in direction and mobility, they ascend as forms to the consecutively higher altitudes, whence they descended as earlier and later, or basic and superbasic, germs by absorbing the still earlier and still later germs in process of ascent and descent from and toward the centre of Infinite Being. Reasoning analogically from the known direction of the earth's aerial currents that flow continuously toward and from the earth-sphere's polar centres as do the planet-spheres toward and from the solar sphere's polar centres, we perceived that these ultimate germs of form *acquired* their ability to descend and ascend, and circulate in every needed direction, by having their elastic potencies molded *in transitu* into the *form* of every intermediate point of space. This, because the *form* of these utterly immovable points condition the never-ceasing flow of the *substance* through which their actions and re-actions, when combined as organic forms, are manifested. That is, the ability of its organic forms to move in specific directions is due to the specific moldings of their ultimate germs, primal and nutritive, which has caused them to aggregate in different specific structures during the progress of our sphere from its embryo state to the present.

Thence recognizing their specific forms and motions, their static and dynamic qualities, as the sum of those of their ultimate constituents whose modes of motion symbolize the special or abstract qualities of the forms to which they are respectively fruitful, we perceived

that their motions were necessarily repetitions of the axial and orbital revolutions of the nuclei of the *intra-solar* spheres within whose combined atmospheres they, as the ultimates of our sphere, are gestated, thereby molded, by the forms of the same ultimate points of space.

As the process of generation is purely nutritive, we recognized the functions of the germs inborn from the alimentary canal through its mouthlets, to which the special mouth is portal, as symbolic of the sapid quality of things; those of the germs inborn through the bronchial system, which is continuous as the middle coat of its vessels throughout the entire sanguiferous system, as symbolic of odorosity; those of the germs inborn within the nerves of vision, as symbolic of luminosity; those of the germs inborn within the nerves of hearing, as symbolic of sonorosity; while those of the germs inborn through the general pores or tactiles of the entire organism are symbolic of tangible properties which include the entire range of tangible temperature.

This perception, that our entire organisms are constituted of the sensible essences of nature's thoughts embodied in forms symbolic of their specific modes of motion or sensible qualities, not only coincides with Plato's assumption that "ideas are innate;" but the different sensations produced by the assimilation of sapid, odorous, luminous, and sonorous essences, all of whose modes of motion include the range of temperature and tangibility, reveal the fact that substance exists in four specific states of sensible expression, each of which states necessitates the efficiency of an equivalence of correspondingly plus mature or atmospheric substance, whose modes of motion are *beyond* the range

of our minus mature plane of sense-perception. This, because the substance of whatever quality or mode of motion we sense becomes, by a reversion of its spacial condition and spherical position as the atmospheric essence of objective forms, nucleated as a perceptive agent within the organ of sense by which it is subjected; each perceptive agent being adapted to subject as nutriment such essences as inherit the same modes of motion as those inherent in its constituent essences prior to their subjection to the nuclear plane of development.

Perceiving clearly that the genetic process is purely the organic combination of essences inheriting opposite motive tendencies in consequence of having been subjected to opposing spherical positions during equal periods of time, we thenceforth recognized the "creative power" as *immanent in the substance of things* in the sense that essential substance, whose elasticity or vitality is strictly homogeneous under like spacial and timal conditions, is self-formative and self-existent; the spherical form of its gravital force or tendency toward a forever-impossible static equilibrium and the never-ceaseable spacial or structural changes consequent there-upon being *per se ETERNAL LIFE*.

This recognition included the perception that the genesis of elemental spherules is inevitable and continuous, and consists of the diametric opposition and inseparable conjugation of like essences or essential germs descending and ascending toward and from the infinitude of spherical nuclei that make up the sphere of formation. Their counter-tendencies, and movements toward each other, being due to their subjection respectively to the greater spaciality and condensive pressure

of the atmospheric departments and to the lesser spaciality and expansive pressure of the nuclear departments, they are equally foreitve at their every altitude of meeting within the limitless boundaries of infinite space. It also included the correlative perception that the genesis of compound spherules is alike inevitable or spontaneous, and equally continuous, and consists of the more or less angular opposition and conjugation of essential germs fruital to elements indigenous as such to different altitudes and latitudes, and therefore inheriting different elastic tendencies or dynamic qualities. As regards the sexual functions of spherules, we perceived that they were necessarily determined by the developmental stage of their prime nutrient germs, inasmuch as they become the prime ova of the specific germs, their prime embodiments; hence must needs be on a corresponding plane of maturity. For example: when the counter-sexual essences fruital to aqueous spherules (females) and aqueo-vaporous spherules (males), become organically combined within the earth's aquaceous and earthy or nuclear strata, their prime nutrient germs are on the nuclear or female plane of development: hence they are female, or negative, in the sense of being expansively elastic. When their prime genesis occurs within the atmospheric strata, they are male, or positive, because condensively elastic; the polarity of both being *acquired* during the tidal waves within their native strata.

When the essential germs of descending and ascending, or male and female, spherules of nitrogen and oxygen, become organically combined as compound aerial spherules outside the polar ellipses of the earth's aerial stratum, their sex as such is male, because their prime

nutriment, which becomes their respective elemental ova with which each specific empyreal germ embodies itself, is on the atmospheric or male plane of maturation. But such as become combined within these polar ellipses,—the prototypes of the generative organs of air-breathing vertebrates,—whither they are forced by their combined momenta under the equal pressure of the strata above and below them, are females, because their prime bodily nutriment, which determines their sex, as also their specific structure, is on the nuclear or female plane of maturation. This dual perception—that the nucleus and atmosphere of every sphere and spherule, and of every intermediate form which the latter become within the former, are functionally female and male, and that each has its bi-polar genitals in its every stratum, nuclear and atmospheric, within whose dual foel the spacial or counter-elastic qualities of the substance of its bi-equatorial counter-currents become reversed during equal periods of time—led directly to the perception that the two sexual functions represent the counter-necessities of substance as essence and as form.

That is, the male qualities, or centripeto-rotary motions, by over-expanded atmospheric *essences*, necessitate their nucleation as *forms* of substance; the centrifugo-rotary motions of the essences fruital to these nuclear forms being the female or complementary qualities necessary to effect organic combination.

This recognition included the perception that the nucleation of more and more *complex forms* were inevitable and continuous, and that the constituent spherules of each were continuously radiating nuclear or female elementary germs, all of which become sponta-

neously atmosphered by male gernis inheriting complementary qualities.

This, in turn, led to the perception that the sensible qualities of things are represented in the states of rest, and modes of motion, inherent in and expressed by their constituent and fruital essences, nuclear and atmospheric; and that when these comparatively static and dynamic essences, or those set in motion thereby, are assimilated by the afferent nerves of any department of a sentient organism, their spacial conditions, and consequent elastic tendencies, become reversed, and they are instantaneously transformed into sentient agents capacitated to cognize what *they priorly were*, viz., the general properties or tangibility and temperature of the things to which they are respectively fruital; and that, when assimilated by the afferent nerves of special sense, they are instantly transformed into sentient agents capacitated to cognize what they priorly were as the essential representatives of the sapid, the odorous, the luminous, or the sonorous properties, as the case may be, of the things to which they are respectively fruital. This, because the modes of motion by the substance involved are instantly re-expressed through the projectile force of the efferent nerves to the same plane (nuclear or atmospheric, as the case may be) whence it was condensed.

This, in turn, included the perception that the essences of sensible expression are centrifugal or female within the atmosphere of an objective form, but which, when concentrating within the atmosphere of another form, are centripetal or male.

Accepting the "modes of motion" by the solar orbs as prototypal of the "modes of motion" by the sub-

stance of their spherules and of the forms they constitute on the surface of each, we perceived, that in like manner as the planets reflect the empyreal rays of outer suns *inward* to the solar sun (that reflected by each being expressed through its *special* orbito-axial revolutions, all of which special modes of motion are *concretely re-reflected outward* by the sun), so the *special* or atmospheric senses of each sentient being, in accordance with the special capacity inherent in the substance of each, reflect *inward* to the culminate ego or central sun the special modes of motion by the radial essences of objects that represent their special or abstract qualities; all of which are re-reflected through the modes of motion by the perceptive agents that represent the cognition of concrete qualities. We also perceived, that in like manner as the alternate plus and minus pressure produced within the solar sphere by the revolutions of the planet-spheres, by means of which external nutrient essences are transmitted interiorly, and its ripened or ex-nutrient essences are transmitted exteriorly, are equal and simultaneous upon the centripetal and centrifugal solar rays, so the alternate plus and minus pressure, or pulsations produced within a sentient organism by the assimilation of nutrient essences and the parturition of those ripened as fruital, are equal and simultaneous upon the motor and sensor nerves. There can be no interval of space or time between the *motions* of the essences that procreate sensations and the *presence* of the perceptive agents they become. The change in their modes of motion or timal qualities is due solely to the reversal of their spherical position or spacial condition. We also perceived, that the ability of substance, aggregated as *forms of moving*,

to ascend to higher heights, on and on, ever and for ever, is due to the periodical escape of their essentially dynamic organisms from their ova-embodiments within lower altitudes and later interspheres, and their enspherence by like germs of counterpart qualities from still higher heights, from the centre of Infinite Being. This was *de facto* a perception of the counterpart or reciprocal necessities that condition the prime genesis and growth of *all forms of substance*; which conditions effect their continuous existence and continuous progress in complexity of movements, through continuous transformations of their essential organisms, to accord with the increasing refinement and mobility of essential substance at consecutively higher outreaches toward the circumference of Infinite Being. This, because it included the perception that the fruital essences of consecutively earlier forms, regardless of their transformations or somatic disembodiment on lower planes of maturement and their re-embodiments on higher, are continuously becoming the prime and nutrient essences of consecutively later forms, in accordance with their specific tendencies. It also included the sub-perception that the states of rest by essential germs are simply their ovum-stages of development as the souls or essential organisms *in ovo* of elemental spherules.

Pereceiving, as we did, that the states of rest and modes of motion that make up the static and dynamic qualities of nature's thoughts — all of which are embodied in forms that symbolize their elastic potencies — are purely ideal, inasmuch as their existencce as *sensible* qualities is *within* the mind or mental prospective of the sense-pereceptive being by whom they are cognized, we recognized these cognitions, or subjective objects, in

their entirety, as the actual constituents, the identity, of the sentient being that cognized them. As we ignore alike the idea that such perceptions of nature's laws are miraculous revelations, or the result of jumping to conclusions by guess-work or otherwise, we present the argument by which we obtained a "clear conviction" that each man *is what he senses*, that his subjective and his objective universe is one and the same,—*is himself as perceived by himself*.

In the first place his nuclear or objective organism is an epitome of the earth's immediate surface-strata and its immediate atmospheric strata that make up the sensible world within which it is fatally gestated. As is well known, no substance enters this organism except through the pores of its serous and mucous membranes, the efferent nerves of which are all sensitive. Through its motor nerves it assimilates the ex-constituent essences of external bodies. Those whose functions represent their tangibility, their temperature, their sapidity, their odorosity, their luminosity, and their sonorosity, are aggregated, and being gestated therein, as the bases of the organism's supersensible atmosphere above its illuminable surface-atmosphere, in like manner as the elemental ova of our sensible world are being gestated therein as the bases of its supersensible atmosphere above its photosphere, or illuminable atmospheric strata. The organism's earthy and aqueous strata are its alimentary and lymphatic systems. Its aerial stratum is its bronchial system, which is continuous, as the middle coat of its vessels, throughout the entire sanguiferous system. Its super-aerial stratum above the cloud region, and within the ecarulean vault, is its cranial system above its lymphatic system. It was simply an extension of the

principles involved in prior perceptions, to recognize the infinitude of living entities within these consecutively higher systems of circulation in man's organism — their stratial matrices, as intypes of those within corresponding strata of our visible world — the organism's matrice, within which it is gestated preparatory to its essential outbirth into a higher world.

The living essences or essentially dynamic organisms of those within the alimentary system are continuously becoming outborn therefrom, and re-embodied within the chylo-lymphatic, the sanguiferous, the bronchial, and the cranial systems, in forms that symbolize their functions; while the counterpart essential germs fruital to their respective prototypes in the different strata of the organism's matrice are continuously descending through the afferent vessels of these systems as the superbases of their respective elements. This intypal process is positive proof that the essentially dynamic or living organisms that ensoul the objective organisms of our world are re-embodied within correspondingly more refined and more complex matrices; the sum of those within each being *per se* the consecutively higher or more spacial worlds through which they ascend, just as our world is the sum of the elements, the compounds, and complex forms, that are ascending through its consecutively higher strata. And just as our world is developed between, and constituted of, the counter-tending essences fruital to strata below and above its terrestrial altitude, which combine within it as its elements, compounds, and complex forms, so the earth-sphere as a whole is developed between, and built up of, the centrifugal and centripetal rays fruital to the strata below and above its solar altitude.

By an involution of this universal genetic process the human organism *in utero* is developed between, and built up of, the counter-tending essences fruital to the elements of the nuclear and atmospheric departments of the maternal organism, which are intertypes of the earth-sphere's nuclear and atmospheric rays; the paternal germs involved being intertypes of the solar sphere's nuclear and atmospheric rays.

The essences introverted as the different strata or currental systems in the embodiment of the specific germs of a nascent human, having been moulded *in transitu* through those of the maternal organism, and having been priorly molded *in transitu* through the earth-sphere, the solar sphere, and every more and more embracing sphere back *ad infinitum*, they *inherit* the structural proclivities of every form of moving to which they have been subjected.

Those manifest by the constituent essences of their latest matrice being the first manifest in their evolution, they necessarily aggregate in the same specific structure. By accepting the being and doing of things — their static and dynamic qualities, all there is known or knowable, as *thoughts* latent and acted — we readily perceived that the living entities that subsist within man's organism as the life thereof, like their prototypes in corresponding strata of its ante-proximate matrice, our sensible world, were necessarily aggregated in structures pantomimic of what they need to do, and do do, in order to maintain their relations with their immediate surroundings; and also perceived that their differentiations were pantomimically prophetic of differentiations in their surroundings due to changes in their stratial relations. In accepting these naturally-revealed truths,

which were forced upon us as questions pregnant with the answers sought, we saw no necessity for *miraculous inspiration* in order to read nature's thoughts written in its symbolic language. We perceived that the essential representatives of abstract qualities, — nature's thought-germs, — in their infinite transformations as the concrete qualities of an infinite variety of forms, were continuously becoming individualized in the *natural growth* of man's bodily form as an epitome of the objective universe on the nuclear or ovum plane of human development; and also perceived that these thought-germs, as the representatives therein of the abstract qualities of their outer prototypes, must, like them, become aggregated as elemental ova on the same plane of sense-perception. That is, those representing the tangibility and temperature of an organism in the outer world become incipient in the alimentary canal; those representing their sapidity become incipient within the chylo-lymphatic system; those representing their odorosity, within the bronchio-sanguiferous system; those representing their luminosity, within the neural department of the organism to which the eyes are portal; and those representing their sonorosity, within the neural department to which the ears are portal.

Alimentary forms represent the being and doing, the latent and acted thoughts, of animal life in the outer world on the plane of general sense-perception.

These include the various species of polyps and spores that vitalize the mineral and vegetable kingdoms, to which the germs of all sub-surface forms, fixed and free, are basically nutrient.

The forms within the consecutively higher systems of circulation in man's organism represent respectively

the latent and acted thoughts of animals in the outer world possessing taste, those possessing taste and smell, those possessing taste, smell, and sight, and those possessing taste, smell, sight, and hearing.

In perceiving that all man's cognitions were embraced within the illuminable strata of the planet upon which he exists, and like photospheric strata of other orbs in space, we recognized these boundaries as the present range of the pereceptive powers of his sentient agents on their atmospheric plane of maturation.

In extending this principle of repetition, we perceived that these sentient agents were constituted of the earlier and later essential germs fruital to the forms that make up his strata of subsistence within the earth-sphere, organically combined as corresponding forms within corresponding strata of *his sphere of existence*,—his identity, and that their structures and functions were miniature repetitions of those of their prototypes on the outer plane; the sum of their specific ova, when aggregated within the genitals of the organism, being its specific ova. And perceived, that in like manner as they grow up to the plane of conscious recognition within the organism's atmospheric strata, from the lowest plane of automatic response within the alimentary canal, by absorbing the sapid, the odorous, the luminous, and sonorous essences of outer forms through the lacteals, the bronchial tubelets in the middle coat of the blood-vessels, and through the lymphatics and nerves that open on the outer surface of the body and head,—the intertypes respectively of the aqueous, the aerial, the aqueo-vaporous, and the super-aerial strata,—so the organism as a whole has grown up as one of nature's embodied or concrete thoughts from the prime dual

strata of the earth-sphere, now its eentremost and outermost, by absorbing counterpart essences from corresponding strata of the solar sphere transmitted through the terrestrial strata above and below its spherical altitude therein.

As this proeess of repetition reveals the fact that the earth and its atmosphere eonsist of the nuclear and atmospheric departments of its suceessively-developed stratial worlds or stratifications, whieh are prior-past, past, and present, reckoning from our altitude eentreward, but present, first future, and seeond future, as regards our atmospheric or metaphysieal progress, we pereceived that human inspiration ineludes not only the latent and aeted thoughts of their present commensals, but it also includes those of all our predecessors to these higher and riper worlds toward whieh we are progressing in virtue of their continuons descent, as the superbases of the less mature thought-germs indigenous to our lower plane of sense-pereception within a less mature world of sensible forms. Psychometry proves that the being and doing, or latent and aeted thoughts, of animate beings, even of prehistoric ages, are photographed upon their inanimate surroundings, so that certain sensitives can describe them from what speemimens of these surroundings reveal ; just as any one can describe a landscape from its atmospheric essences,— what he smells, sees, and hears. Photography, in turn, proves that light is actual substance, and also its inseparable accompaniment, heat; while the mierophone proves that the vibrations or rotations of essential substance reeognized as sound actually exeeed in rapidity those whose glintings are recognized as light; the vibrations of those reeognized as odor being still less rapid. The vibrations

of the latter, when liquefied, are recognized as flavors. Sapid essences, in turn, attain the vibratory motivities recognized as odors when volatilized. In perceiving that these dynamic essences become, by their various modes of motion, the special sensations of taste, smell, sight, sound, and the general sensations of temperature and tangibility within man's selfhood,— all that he is adapted to cognize on his present plane of sense-perception, and all that is needed as bodily powers,— we recognized the aggregation of these essences as his *creation*; his mind, or universe of conceptive creations past, present, and future, being what the successively later, and more mature, and more refined essences fruital to the entities of the objective universe cognize *when subjected as his perceptive agents*. Or, as Plato expresses it, “the soul, within which the types and models of all things exist as the bases of our conceptions, *recollects* the ideas in proportion as it becomes acquainted with their copies with which the world is filled; the process being that of recalling to mind the circumstanees of a state of *pre-existence*.” Although Plato, like most of his profession, ancient and modern, dared not question the arbitrary creation of things by explaining their pre-existence, yet we find embodied, in the mythologic system of worship then existent, evidences that more ancient philosophers perceived that the earth's successive surface-forms pre-existed as our sun's successively later rays, having had a past existence as the rays of an earlier sun, within whose atmosphere our sun and its atmospheric suns subsist, and also a prior-past existence as the rays of a still earlier sun.

We learn from mythologic history, that, when these suns became objects of worship, a most cruel contro-

versy was initiated between the priests of Saturn, Jupiter, and Baal; those of Baal claiming on superficial evidence that our sun was the creator of our world, and was therefore entitled to its worship; while those of Jupiter, on deeper evidence, claimed, that, inasmuch as the former was the son of the latter, Jupiter was the supreme Deity, he having by artifice obtained the kingdom of his father Saturn, the most ancient sun-god. Perceiving, as we did, the mythological origin of this supreme sun-god, Jove,—the unseen heavenly father of the ancient Pagan world, and the typical creator now worshipped by all nations,—we dared to doubt authorities derived from such a source, and regarded the *memory* of nature—the ideas *innate* in its thoughts embodied in human forms, and those *impressed* upon, as well as inherent in, all its less complex forms of thought provisional thereto—as the only truthful “revelation” as to the whence, the wherfore, and the how of its objective existence; taking it as granted that the memory of humans, that of each being a repetition of nature’s, is to each the highest possible evidence of their present, past, and prior-past existence as thinking beings. And perceiving that nature is, and always must have been, perfectly unrestricted in the embodiment or expression of its thoughts, otherwise than the spacial and timal conditions involved necessitated, and that the functions of each embodiment were truthful revelations of its uses and mission in the kingdom of nature, in like manner as the functions of each organ reveal its uses and mission in the organism to which it is constituent, we recognized the necessity of a like freedom of thought by humans, under like natural restrictions. Learning from history that the tenets of all systems of worship,

modern and ancient, have been promulgated by physical force, all dissensions therefrom being punished by every species of torture conceivable, we saw clearly that there could have been no *natural* development of the emotional nature, or religious sentiments, while reason was subject to the caprice of rulers whose sole aim was to gratify their own love of power and praise by compelling their subjects to worship their assumed prototypes. Reasoning therefrom, we became fully convinced that no religious tenets that do not commend themselves to human reason practically are worthy of either respect or acceptance; thence saw no necessity of any other mediator between the infinite over-soul of nature and the infinitude of its individualities as the inner-soul of nature, save the *natural tendencies* of the substance of things to act and re-act in unison as one harmonious whole.

Claiming the *inspiration of free thought* as the only "divine revelation," we accepted the direct testimony of nature as the bases of our investigations, and have expressed our thoughts freely, without leave or hindrance from any other authority.

As our assumption—that life is *per se* the intrinsic elasticity of substance; and that, under like spacial conditions due to like spherical positions, its elastic tendencies are homogeneous; and that, under unlike spacial conditions due to unlike spherical positions, its elasticities are heterogeneous; and that, when substance is so comminuted as to be on the essentially dynamic or mature plane of vitality, it is identical as substance with that condensed on the static or ovum plane as the embodiment of the former—is diametrically opposed to the popular assumption that the phenomena of nature

are the result of two intrinsically antagonistic "forces," the vital motivities of "spirit" and the inertness of "dead matter," both omnipresent, we appeal in defence to what is directly expressed in and through these phenomena.

Being aware of the false impressions and inextricable confusion that result from the use of the terms, "spirit" and "matter," we have dispensed with both, using only the term, "essential substance" to express *our ideas* of the vitality and substantiality of *nature's ideas*.

And being aware that the use of terms significant of sex in a figurative sense is equally confusing, and utterly unscientific, we have dispensed with every phase of *personification*. We have also strenuously avoided the use of any term whose meaning is obscure or foreign,—such as have rendered the theories of different systems of philosophy, especially those of metaphysics, unintelligible to the masses, even were they truthful; which we have ventured to question.

As regards the discoverers of the facts presented in corroboration of our premises, we give due credit to each and all, even when forced to dissent from their theoretical deductions.

As these facts have been gleaned from every department of science, and their bearings, general and specific, carefully scrutinized, without prejudice for or against popular theories, during a long series of years, our work is necessarily encyclopædian, and bold in its claims for public consideration.

We do not ask exemption from criticism, our aim being purely the discovery of truth; but we entreat that our critics be stimulated by a like desire rather than by a desire to defend what is popular by eschewing impar-

tial investigation. Although aware that no system of philosophy can be judiciously accepted or rejected unless impartially examined from the axis of thought whence it has been idealized, yet we trust there is sufficient interest and indecision as regards many of the questions discussed to warrant a careful perusal.

Our assumption, that the sentient and non-sentient entities that make up the objective universe within which man is gestated are inter-repeated within and as his subjective universe (himself as cognized by himself), or, in other words, that he is what he senses, is a *new basis of thought*.

Hence the merits of the reasonings therefrom cannot be determined by indifferent or prejudiced readers. Unless its bearings upon the entire encyclopædia of science are perceived, the *rationale* or philosophy of knowledge, of which it is the foundation, cannot be perceived.

In giving explanations in correspondence with the mental prospective from the stand-point whence it was idealized, our treatise is necessarily prolix.

Begging pardon therefor, we herewith present it to the reading public, to whom it is respectfully dedicated.

J. S.

CHAPTER I.

INTRODUCTORY.

1. IN the matter of substantiating truth, whether regarded as relative or absolute, we take exceptions to the popular assumption that self-evidence is evidence devoid of and incapable of proof, and accept all facts as the self-testimony of that of which the fact is affirmed. This testimony, we assume, is corroborated by the homologies and analogies of nature, the sum of whose objective revealments is the all in all of proof. It is the *acceptance* of this self-testimony *as self-evidence* that produces the "clear conviction," or certainty of its truthfulness, in the mind that accepts it. Self-evidence in its *expression* is the self-testimony of things, each of which is what it is, and does what it does, in virtue of its inherited powers modified by its conditions. In its acceptance by man it is whatever he is able to elicit from the being and doing of things collectively and individually. We also take exceptions to the popular assumption that ABSOLUTE TRUTH is *unknowable*, and accept the self-testimony of relative truths as isolated expressions of their *absolute or self-conditioned relationship as an inseparable whole*. The ABSOLUTE is self-complete.

Regarded as the unity of substance, space, and time,

in their entirety as force, form, and motion, it embraces all conditions, past, present, and future, hence *is* an attribute of all forms of substance, both in their present *absolute self-completeness* and in their *absolute progression*, which necessarily include that of *self-expression*, thereby precluding the possibility of an "unknowable" outside of its expressibility or self-revealment. Not only this; but to every student of nature there comes a time when he instinctively seeks for knowledge of the absolute. The fact that his promptings in this direction are independent of the training to which he has been subjected is ample evidence that he not only needs such knowledge, but is competent to attain it. When he questions nature from need to know, he already perceives the truth he is seeking *in perceiving the necessity of its existence as an answer to his question.*

The answer is father to the question. The only revelation possible is each man's growth up to a perception of the necessary existence of truths, a knowledge of which is indispensable to his mental progress. To him each is necessarily *self-revealed*. Hence each student should study the facts of science unprejudiced by pre-existing or popular theories, and should accept the self-testimony of things, *what they do*, as the sole criterion by which to judge of their qualities. The only process by which the public mind can become normally developed is for each man to follow his natural instincts, and to think for himself to the extent of his abilities. Instinct is innate reason, and, as regards the inner needs of the organism whence it originates as such, is true to the needs that prompt its outreachings. It is conscious only of *inner effects*; whereas reason,

which is a more complex but a less developed faculty, as we purpose to show, is conscious of *outer effects*. The former is purely selfish: the latter, measuring the needs of other organisms by what it perceives to be necessary to its own, instinctively perceives their equal right to supply *their* respective needs.

2. In the battle for life the more complex but less developed organisms live upon the less complex but more developed organisms. Undeveloped reason becomes developed by the assimilation of developed instinct. Not only are the bodily qualities of less reasoning animals, that become the prey of those of more complex faculties, assimilated, but their every instinctive faculty becomes additional to, hence helps to constitute, the higher faculties of the latter. This is the order of nature. Hence minds of more complex faculties become leaders in the kingdom of thought, and dominate those of less complex faculties, not by brute force, but by their superior reasoning powers. Man's appetite for solid and liquid food belongs to the lowest stratum of animal life,—the alimentary system. His passions and emotions belong to the next higher stratum,—the sanguiferous system. His reasoning faculties belong to the highest stratum,—the cephalic system.

Although the nervous system is first incipient, yet its first expressions are through the alimentive powers, thence through the passions and emotions. Reason, their crowning product, necessarily includes all the lower powers causative to its culmination as their outer expression. Although the least developed as such, it is the most complex, hence must ultimate as the dominant faculty.

The evils of civilized life are solely due to the imma-

turity of this its legitimate sovereign. During its minority these lower powers continue to battle for their instinctive right to gratify self by physical force. But the strivings of reason to attain the supremacy are as necessary to its development as is the ultimate subjection of the lower passions to its wiser control. Hence every man should be as free to select his mental food as he is to select his physical food, in so far as his acts do not infringe upon the rights of others. Although facts are absolutely truthful in and of themselves, whatever the stand-point from which they are perceived, being alike true to each, yet by no possibility can the same object, or any fact concerning it, be perceived in precisely the same relations at different stand-points, or by different observers at the same stand-point. And although no range of perception less extended than that which embraces the infinite relations of things is adequate to a full conception of the principles involved in the phenomena of nature, yet we are aware that every step taken in tracing the ascending series of nature's forms of force widens our range of perception. Thence in adding what we perceive regarding them to our previously-attained stock of knowledge, we can and do become conscious of nature's progress in *the consciousness of our own progress*. Perceiving, as we do, that our ideals or conceptions of the principles or causes overlying and underlying these phenomena are comprehensive in the degree the ideal stand-point from which they are mentally observed is elevated, we have attempted the study of nature from the highest plane of conceptive creation attainable by our imagination. Although, in our search for the absolute, we are forced to accept the existence of things as self-evidence of the

existence of the *cause essential thereto*, yet, in assuming to designate its outer representatives, we hope to present facts that fully license the assumptions. Consciousness of the absolute does not necessitate a knowledge of absolute values, either as regards the quantity of substance involved in the constitution of things, or the extent of the spaces they occupy, or the length of time required in their development. Absolute being, in order to be complete in itself, must include the *conditions* of its existence. Hence knowledge of absolute existence includes a knowledge of the conditions or causes overlying and underlying the existence of things, each of which must include *in itself* the completeness or conditions of its existence. Each effect, therefore, includes its causes, and every cause includes its effects. This alone is the completeness of being.

The first step toward a knowledge of things is to study their conditions, all of which are revealed in their existence as parts of an inseparable whole, which wholeness in its absolute completeness includes, hence *is, their individual completeness*. The growth of objective forms across the plane of sensible expression is suggestive alike of absolute progress and of the existence of different planes of sense-perception.

There is also an appreciable ratio of progress in the earth's development. This ratio, however indefinite as regards the absolute progress of its constituents, reveals analogically, not only a lesser degree of development in a prior past than in a less distant past, but is indicative of ever-lessening immaturity in a first and second future. If the earth reveals in itself a ratio of progress in maturity, there is of necessity a corresponding ratio of maturement in its *conditions*.

3. Our next step is to ascertain what constitutes the conditions of its existence. If, like its products, its growth in maturity involves a definite increase in its spaciality, which, in turn, involves a co-equivalent of time, then space and time are respectively the measures of its *forms* and its *motions*, — all there is *knowable* of any thing. And what are *space* and *time*?

Our only idea of space is the extension of form. Our only idea of time is the extension of motion.

We think of space and time as indispensable to the extension of form and motion, without which neither could become expressed.

We think of them as distinguishable regarded as abstractions, but at the same time perceive, that, as ideals of the conditions provisional to the existence of things, they are utterly inseparable. It is impossible to think of space abstracted from form, or an area of space with specific limits, or to think of time abstracted from motion. The perception that space and time are inseparably conjoined *per se*, and are alike inseparable from form and motion, has induced us to examine their relations critically. In perceiving that space conditions the extension of form (static motive power), and that time conditions the extension of motion (dynamic motive power), and also that the forms and motions of nature's constituents are essentially inseparable, and that they require space and time within which to become more and more extended, we recognize the area of space individuated in the *form* of a body as the measure of its static motive powers; while the extension or range of its functional activities is the measure of its dynamic motive powers.

For example, the measure of the earth's nuclear form,

or static power (power to move), is a sphere eight thousand miles in diameter; while the range of its dynamic power, its actual movement, is the orbit of its revolution around the sun, the mean diameter of which is a hundred and ninety millions of miles. Again: in perceiving that these powers are supplementary, neither of which could be what it is without the other, we recognize space and time in their entirety, and also in their inter-individuations, as counterpart or correlative conditions; hence recognize space, the measure of form, as absolutely immovable; while time, as the measure of motion, is absolutely never at rest. We also perceive that form and motion are expressed by and through something within which they are inherent, and to the expression of which space and time are conditional, and which, under adequate conditions, becomes aggregated as substantial forms.

It is solely in virtue of the correlations of form and motion as static and dynamic motive power,—that which fulfills motion, and that which moves within specific individuations of space,—that we recognize the existence of *substance*, which is simply the recognition that the forms through which it becomes sensibly expressed are *aggregations of its essence*.

4. Substance, whether or not its forms and motions are cognizable by human sense, is *in effect* what is popularly recognized as *force*.

It matters not that its empyreal forms are termed “imponderable agents,” *they are the substance* of its every ponderable form. Force is therefore the motive power of substance. If so, *substance is motive power, static and dynamic*. In order to become expressed as motive power, which involves counter-forceitiveness, it

must be intrinsically adapted to aggregate in counter-foreitive forms: hence it must be intrinsically elastic. And as its aggregation in counter-foreitive forms is universal, all of which are rhythmically co-operative, it must be intrinsically homogeneous and essentially modifiable.

Now, as it actually exists as the solid earth surrounded by a visible stratum of water, and also as the earth's invisible atmosphere, whose motive powers as such are counter-tending, we are licensed to assume that their counter-foreitiveness is due to the disparity in their spacial extension, and that their rhythmic co-operation through the continuous exchange of their essential substance, is due to its different degrees of density. The fact that the earth and its atmosphere retain intact their equivalents of force is positive proof that the force which each receives from the other is equal as absolute force, but that, in order to be nutrient to the receiver, the motive tendency of the essences exchanged must become reversed by a reversal of their respective spacial extensions. That is, those received by the earth must become condensed in the degree those it communicates to the atmosphere become expanded. This, in turn, is proof that the earth and its atmosphere are quantitative equivalents of substance, but which as essence is counter-spacially conditioned, which renders their elastic force counter-tending as wholes.

If the existence of substance as self-moving forms is solely in virtue of its modifications by space and time, as their correlations as form and motion clearly demonstrate, then the perception of physical and metaphysical truths is solely consequent upon a perception of the spacial and timal conditions of their constituent

essenees during their aggregations, or their beeoming existent as forms; *forms, and what forms do*, being the all of natural phenomena, and the only source of positive knowledge.

These constituent essenees are *as substance* identieal with those that are continuously radiating from the superficies of every form in nature.

When the modes of moving by these radiating essenees are trausmitted to the nerves of sense by vibrations produued in like intermediate essenees, it is the modes of moving by those that enter the organs of sense — the actual repetition of the modes of motion recognized as light, sound, smell, taste, or tangibility, as the case may be — that produce sensation. These essenees, directly they are inborn within the organs of sense, become the sentient entities that perceive the luminous, the sonorous, the odorons, the sapid, or the tangible qualities, as the case may be, of the external object, the sum of which is its sensible expression. Or, in other words, the free surface-essenees of the object represent dynamically the inherent tendencies of those staticised as its form; their motions being repeated directly and reflexly by those they set in motion, and force within the organ of sense adapted to assimilate them. The surface-essences of an object, being free to move, move of necessity in accordance with the motive tendency or expansive elasticity of the entire underlying essenees eondensed as its form *modified by atmospheric pressure*, hence express in their modes of moving all the varieties of motion that represent its sensible qualities.

The fact that the ideals or images of things within our minds possess the same forms and the same modes

of moving as their prototypes within the outer or objective universe is our license for assuming that they are alike substantial. We perceive the *rationale* as well as the actual truth of this assumption, when we learn the mechanism of the human organism, and learn that its entire substance, from its incipiency, is inducted through the organs of sense,—the reticulated nerve fibres that constitute the three layers of cells termed the “germinal membrane.” The outer or “serous layer” of this membrane, which is developed between the outer and inner envelops of the yolk of its ovum of evolution, is the first to become microscopically visible, next the inner or “mucous layer,” and, lastly, the middle or “vascular layer.” During its fetal development the outer layer becomes the nervous system, the inner layer becoming the alimentary system, and the middle layer the sanguiferous system. The walls of the vessels of the latter system are also constituted of two layers of cells, between which, in the more complex and later developed vessels, there is a middle layer constituted of interlinked miniature sanguiferous systems. As these vessels are in reality introversions and re-introversions of the outer and inner layers of the germinal membrane, their essential substance, in order to be adapted to generate an intermediate layer with intermediate motive tendencies, is necessarily counter-forcitive and interchangeably counter-functional.

5. We are aware, that, when the sense of sight is withdrawn from an object whose peculiar formation and motivities have been perceived, we can recall at will its *entire* objective appearance, or can recall any *especial* appearance.

The recollection of the former is the ideal of its

qualities *concretely* considered. The recollection of the latter is the ideal of an especial quality *abstractly* considered. In *our* ideal of conceptive creation each separate sense abstracts as nutriment the essential representative of the especial quality of things that contributes especially to its development, which in becoming simultaneously reflected by each, either by re-sensing it or recalling it, results in the synthesis of these abstract ideals as the concrete qualities or images of the things within the mind. Thoughts are, therefore, the ideals of the abstract qualities of things synthetized in accordance with the counter-forms of force involved.

As mental or subjective objects, each concretion of qualities is the likeness of the form and motions of the object whose essences procreate it; while as a mental offspring it is a transcript of the mind that conceives and moulds the essences of the expressed qualities that embody it. The qualities of things are their *forms* and *motions*, general and specific. This comprises all there is *known or knowable*.

The philosophy of knowledge, which includes a knowledge of the mind's necessities and resources, requires alike the investigation of mind (that which *knows*) and the investigation of that which is *knowable*,—the phenomena of nature. The fact that what the mind needs, when supplied, becomes mind, proves the impossibility of obtaining any definite comprehension of either body or mind, when investigated disconnectedly. Mental phenomena are essentially inseparable from physical phenomena. If inseparable phenomenally, they are correlated forcitively. Hence the popular assumption that mind and what is termed "matter" are distinct, and are governed by distinct laws, must be false.

This is one of the points upon which we join issue with public opinion, in assuming that *mind and nature are substantially one*. This assumption is based upon the perception that the qualities or motive powers of the objective universe are repeated within the mind, not merely as symbols, but actually as its inherent qualities, its *substantial motive powers*. In perceiving that knowledge is mental nutriment in virtue of its becoming additional to the mind's motive power, static and dynamic, we perceive that man's physical organism is a microcosm, an inter-repetition of the objective universe, and that his objective organism is to his non-objective or metaphysical organism what the objective or physical universe is to the non-objective universe. And in perceiving that the essences of the earth's atmosphere, its non-objective organism, permeate its objective form, and combine with corresponding essences constituent thereto, which ascend, and permeate the atmosphere, we perceive that the objectivity of the latter is due to their plus condensation, and that the non-objectivity of the former is due to their comparative minus condensation, simply questions of *sense-perception*; while the mechanical results consequent upon the plus condensation of the substance of the earth and the minus condensation of that of its atmosphere prove them to be correlated forthitively, which, in turn, proves that *counter-motive tendency is the result of the counter-spacial condition of co-equal quantities of essential substance forthitively combined within specific limits*.

We infer, from these self-revealed facts, that only the nuclear forms of substance are within the range of man's present plane of sense-perception; and that it is the inbirth of the essences which represent the "images"

of nuclear forms within the metaphysical organism, whose only limit is the range of its perceptivity, that reveals the objective.

In accepting the Baconian definition, that "*knowledge is the image of the objective within the mind,*" the fact that the qualities of things are always abstracted by the sense to which they are respectively nutrient — the revealments of light by the eye; those of sound, by the ear; those of odor and sapidity, by the organs of smell and taste; and those of tangibility, by the organs of feeling — must not be left out of account. This, because the mind's ability to reason, to reflect, to will, in a word, to conceive or conceptively create, all hinge upon its ability *to pose and to transpose the abstract qualities of things.*

Substantially the "representative images" of things are their free surface-atoms, whose peculiar forms of moving are transmitted by vibrations to the essences which are continuously being forced into man's organism, as also into every other form opposed thereto. While only the less subtle are photographed upon their surfaces, the more subtle enter into, and become a part of, their non-objective organisms. It is thus that the atmospheric essences of things which are continuously radiating from every pore of their surfaces are continuously becoming, through the agency of light, sound, odor, sapidity, and tangibility, a part of every other thing within the range of their respective radiatory forces.

These essences, in pressing with plus force upon points comparatively minus in resistance, produce internal cavities or organs within incipient forms, where they become condensed as the bases of forms indigenous to

those cavities, which, when developed as such by combination with like essences subsequently forced in through their external surfaces, are likenesses of the outer forms to which the essences involved are respectively fruital.

The inter-repetition and sub-inter-repetition of prime internal organs reveal the necessity underlying the condensation of substance within those continuously decreasing areas of space, viz., the repetition in miniature of the organisms surrounding it (the organs of nature), whence each organism draws its nutriment. That is, in growing up to maturity, each specific structure reproduces the different strata of the earth-sphere upon whose essences it subsists as its systems of circulation; the order of their ingrowth, as its outgrowth, revealing the order of the ingrowth of their prototypes as the outgrowth of the terrestrial organism. And also reveals the fact, that, when the essences radiated from the forms of substance that make up these strata are individuated as the circulating media of its corresponding strata or systems, they are *de facto* miniature representatives, in form and function, of their respective outer prototypes on the inner or embryonic plane; their growth as elemental spherules being the growth of the organism. Owing to the counter-elasticity of co-equal quantities of essential substance under reverse spacial conditions, when the essences fruital to external objects are brought together within our organisms from opposite directions, and subjected to the mediate compression of surrounding tissues, they are forced to oppose each other, atom per atom, within their combined areas of space. Retaining intact, as they necessarily do, the counter-tendencies resulting from their

prior spacial conditions, the minus condensed essential germ enspheres and permeates the plus condensed germ in like manner as the atmosphere enspheres and permeates the earth; while the latter, by its radiations, permeates the former in like manner as the earth's aqueo-earthly essences permeate its atmosphere.

We infer this, because we perceive that growth is simply the increase of motive power, and that it is effected solely by the repetition *seriatim* of every *preceding form of force* within every *succeeding form of force*. Man's physical and metaphysical growth is the same in substance, and involves the same genetic process, only *the metaphysical is the repetition of the physical within itself*.

Again: in perceiving that each form of substance necessitates the conjugal co-operation of counter-forces to retain its essences or ultimate atoms *in statu quo*, we perceive that the bringing-together of its essences as form necessitated the same opposing forces; hence that the directive tendencies of the motive forces involved are equally effective when formed as during the aggregation of its essences. That is, the ultimate atoms of the form retain intact the same tendencies as they manifested in becoming form, hence will move in the same directions when freed by a force adequate to overcome their cohesiveness.

The fact that the "behavior" of the "essential elements" is the same after decombination as before combination is irrefutable evidence that their specific tendencies are neither suspended or neutralized during combination, whatever the form of the compound, but are equally effective as when free to express their elemental forces.

Not more truly are the mechanical effects of steam the result of its elasticity when condensed, and subjected to the fuleral directiveness of the machinery involved, than are the vital effects of the various nutrient essences the result of their elasticity when condensed within, and subjected to, the fuleral directiveness of the machinery of a living organism.

6. From the fact that substance is existent as forms possessing a variety of qualities, and that the naseent forms within the range of investigation become sensibly expressed by the aggregation of substance non-objective to human sense, we assume that substance is intrinsically homogeneous, and that the minuteness of its ultimate comminutions is as much beyond human conception as the ultimate of its extension as the content of infinite space.

And from the fact that nothing is known of substance, except through its modifications by space and time, we assume that space and time are the conditions of its existence as forms of moving, and that its elasticity under these conditions is the cause of its rotivity when aggregated as spherical and spherular nuclei, and also of the motivities of intermediate forms; hence infer that every ultimate atom is a self-balanced and self-existent motor, an epitome of centripetal, centrifugal, and circular forcee. As the content of infinite space and the motive power of infinite gravity, substance is eternally modified by the fixedness of space and by the spherical form of its motive tendencies, which forever force it toward a never-attainable static equilibrium. Taking it as granted that the earth's centremost atoms are powerless to rotate atomically from lack of space (an excess of fulera), and that the peripheral atoms of its

atmosphere are equally powerless to rotate from an excess of space (lack of fulera), it is readily perceived that they are co-equivalents as regards motive power, and counter-equivalents as regards the direction of their movements. The former being compressed in the degree the latter are expanded, the expansive force of the central atoms counterbalances the condensive force of the peripheral atoms.

In perceiving, that, if the spacial condition and ovate form of these atoms were reversed, the direction of the motive force of their essential elasticity would be reversed, we perceive that *disparity* in spacial extension and ovate position is the *cause* of the counter-tendencies of substance as the essence of form, and also the *cause* of the co-operative power of counter-positioned forms of substance plus and minus condensed. And we also perceive, that, while the motive power of substance is essentially indestructible and eternally efficient,—that of each atom being the co-equal of that of every other atom regardless of condition, its power to move being purely atomic,—the *direction* of its atomic motivities is moulded by the *size* and *shape* of the areas of space within which its essences are forced to *move*, and from lack of space are forced to staticise as *form*. The legitimate inference from these general principles is, that the formation of the earth-sphere (the earth and its atmosphere), of the solar sphere or system of planet-spheres, and of every other sphere, is the effect of a *reversion* in the elastic tendency of the substance of each as a sphere or cycle of gravital force *above* and *below*, and *bilateral* to, mediate altitudes and latitudes. That is, the diffusion or relative extension of the substance of each as a whole (which determines its specific

gravity) is unvaryingly determined by distance from a common centre and a common circumference of motion.

Their mutual tendency toward each other becoming reversed as mutual repellence, the substance of the planet becomes solidified and liquefied; while that of its atmosphere is correspondingly rarefied.

7. This genetic law is omnipresent. The powerlessness of the earth-sphere and its associate planet-spheres to resist the ingress of plus condensive solar essences within their gravitational limits is the measure of the need of each to assimilate them as an equivalent of resistant or expansive force. When correspondingly condensed, they are counter-equivalents of an equal quantity of like external solar essences. This inbirth of the sun's atmospheric essences within its constituent planet-spheres as their essential constituents reveals the process by which they became individuated. The relative plus and minus condensive and expansive elasticity of their substance is clearly illustrated in their arrangement as the nuclear representatives of successive stratifications of solar gravity; their moons being like stratal centres within their respective atmospheres.

The inbirth of substance within animal and vegetable organisms so comminuted by expansion that it becomes endosmosed by atmospheric pressure through their membranes in a dense state, the animus added being its subsequent expansion, reveals the principles of essential generation, viz., *the inseparable inter-adherence of counter-tending essences as the elements of form.*

Whether or not what chemists term elements be the lowest forms of force, there must be a next step above motion in one direction by the combination of essences tending toward each other from two directions more or

less directly opposite. In our ideal of formation each form is built up of the essences fruital to the elements surrounding it, brought together from opposing directions, and conjugally combined as its elements *in embryo* by the equalization of their opposing forces within the spaciality of each, the extension of which is the extension or growth of the form they become. For example, the elements of our sphere—the earth and its atmosphere, upon whose vitality all its forms of life subsist—are empyreal essences radiated from the sun, which were priorly the concentrated rays of *its* counterpart suns combined with like rays subsequently concentrating within the solar atmosphere at their points of meeting within the spaciality of our sphere. The former being basic, and the latter super-basic, they combine at every point within the solar sphere and within its every intersphere, thereby form lines of elemental spherules, which tend toward and from the centre of each in every linear direction.

This is our ideal of elemental force,—force in two directions; the ultimate elements, the thorough-bass of formation, being in grade purely empyreal. And, as regards sex on the essential plane, the rays from each ensphering sphere concentrating within an intersphere are male; while those radiating from its nucleus priorly concentrated are female.

All speculations with regard to the priority of the sexual functions are set at rest by the fact that all organic forms *begin* by the concentration of the essences fruital to parental organisms; those of the female being plus condensed as nuclear, and those of the male minus condensed as atmospheric.

In virtue of these counter-spacial modifications, the

former expand in the degree the latter condense, compared with a medium density, when combined as the nucleus and atmosphere of the "primordial cell" of their common offspring *in embryo*, thereby form lines of incipient elemental spherules. In our ideal of the evolution of the human organization from this cell, we assume from the known laws of vegetation, that, at specific distances from its centre, these lines send out horizontal branches, which meet, as the bases of new perpendicular lines, midway between every four of the original perpendiculars, each line being, *per se*, a conducting vessel.

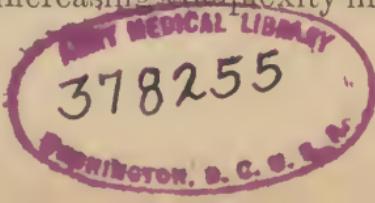
That the nervous and lymphatic systems through which the most mobile and subtle fluids are inducted, and through which solid and liquid food is received, are the sources whence the sanguiferous system absorbs its nutrient fluids, is evident, not alone from the fact of its later development and intermediate position, but from the fact that every blood-vessel is attended by a nerve and a lymphatic vessel. This is our license for assuming that the minute blood-vessels of the middle coat of the larger blood-vessels are attended by, hence are developed between, a nerve-fibre and a lymphatic fibre.

If this be true, then the entire organism is built up of the essences radiated from the forms of substance surrounding it, all of which are primarily inducted through the reticulated nerve-fibres that make up the serous and mucous layers of the germinal or embryonic membrane, branches of which centre within, thence are reflected from, its every cell.

8. The popular assumption that the human organism is the culmination of the structural propensities of all forms of animal life..below its status of complexity has

its foundation, in fact, in the sense that it is *an expression, not only of all their physical powers, but of all their sentient powers unitized*. If this be true, which we purpose to show, it is the latest in its advent, hence the least developed, on the principle that the earth's products (all of which become incipient between its solid surface and its atmosphere) increase in complexity in the ratio of its own increase in maturity. This maturation is its adaptability to *condition* the existence of forms of life more and more complex, but which, as new species, are of necessity correspondingly immature.

The earth-sphere is the sum of its products. Its structure and functions are the sum of their structures and functions individualized. In order to generate more and more complex forms of life, the earth and its atmosphere (the mother and father of these products), their organs and functions as a whole, must, in like manner, be nourished by essential substance adequate to effect the greater mobility requisite to express more complex movements through these their constituent forms. Hence, like them, the earth-sphere must be growing in spaciality, and outgrowing from its embryonic conditions, — outgrowing into higher altitudes and broader latitudes from the centre of solar gravity, where the essential substance it assimilates as nutriment is *increasingly mobile*. Child-like, it is gradually attaining the maturity and freedom necessary to express the motive tendencies inherent in its constituent substance. If these apparently self-evident assumptions are indeed truthful, we at once perceive that the earth's surface-forms are, and ever must have been, aggregated of essences fruital or ex-nutrient to forms of consecutively later advent, and of ever-increasing complexity in move-



ment, combined with the essences fruital or ex-nutritive to earlier or more mature forms of lesser complexity. The latter essences, or elemental germs, being plus mobile from minus condensation in the degree the former essences are minus mobile from plus condensation, they are co-equivalents in quantity, but counter-equivalents in spaciality. Consequently their elasticities, or tendencies to move, are diametrically opposite; so that, when combined within their united areas of space, the more spacial atmosphere the less spacial; the individual force of each equivalent being modified by that of the other through an exchange of *their* essential substance. Hence they grow simultaneously, in like manner as do the earth and its atmosphere, because miniature intertypes of their forms and motions, both of which increase simultaneously in form and in force in virtue of the essential substance received through the latter, and reflected from the former.

This exchange of essences which inherit their respective densities and elastic tendencies is what effects the movement of the earth and of its atmosphere in mediate directions. It is the co-equal but counter elasticity of their diverging and converging rays, the mean of which is rotation parallel to their centres or foci of gravity, that constitutes their electric or longitudinal force, which, in consequence of the spherical form of gravity, becomes expressed bilaterally as bilateral or magnetic force. The intensity of the latter increases in the direction of the earth's magnetic poles in the ratio that electric force decreases from the earth's magnetic equator; that is, in the ratio of the earth's decrease and increase in longitude, and consequent decrease and increase in superficial velocity.

We next assume that the earth's present surface-forms are crosses between what to human sense-perception may be regarded as the forms of a past world and those of a future world, but which are in reality three co-existent planes of maturity, ours being intermediate. This, because we exist within a stratum of the earth-sphere of intermediate altitude and spacial extension compared with that within which the earth's fossil forms existed during their somatic life on its surface, and that to which their essential organisms or spirit forms have ascended. Hence, from a perception of the principles involved in reproduction,—which necessitate the inseparable unification of two quantitative equivalents of essential germs whose elastic tendencies from plus and minus condensation within minus and plus spacial spheres or strata, or their representatives (the more interior and less spacial generative organs of female forms, and the more exterior and more spacial generative organs of male forms) are respectively centrifugal and centripetal,—we recognize the conditions involved as minus and plus maturity; thence recognize correlatively, that when unitized as new spheres, or new strata, or new forms, said spheres, strata, or forms, are intermediately mature in the sense that the centrifugal force of the nuclear equivalent of each represents the minus maturity of the central or female germs; while the centripetal force of the atmospheric equivalent represents the plus maturity of the super-central or male germs. Taking it as granted that all objective forms are aggregations of essential substance, we next assume that the elements of the earth's present surface-forms are constituted of the essences ascending from its sub-strata inseparably combined with those descending from its super-strata;

their inseparability being due to the exact counterpoise between the nuclei and atmospheres of their respective spherules. If the elements of our organisms are constituted of the elemental germs of every species with which we are commensally gestated, we perceive, that, while they are *per se* our organisms, they are *per se at the same time* the essential offspring of the forms to which they are respectively fruital. As the pores of the outer and inner coats of the various vessels and membranes of animal organisms are the only ports of ingress or egress, we perceive that those absorbed by the outer pores are minus condensed, or atmospheric; while those absorbed by the inner pores are plus condensed, or nuclear. Being brought together from opposite directions within the organism, they combine as its constituent elements *in embryo*, thence grow up to maturity in accordance with the tendencies they inherit from the external forms to which their parent elements were constituent, modified by the tendencies of the form to which they are constituent. By this process of commensal gestation, not only is every form being made up of essences from every other form within our common strata of subsistence, but these strata—the aqueo-earthy, the super-aerial, and the aerial—are repeated within each in accordance with its status of complexity.

9. If, as we are forced to admit, the comminution of essential substance accords with the multiplication of the ultimate points of space from the centre of its endless spherical extension, then its infinite extension as an omnipresent unity is simply the unification of its infinite subdivisions; and its omnipotence in the aggregate is but the potency of its infinite essential constituents. And, by parity of reasoning, the omniscience manifest

in the “fitness of things” in their aggregate capacity is but the sum of the mutual exchanges of essential germs as basic and super-basic nutriment between forms plus and minus mature, and minus and plus complex.

Again: admitting, as we are forced to do, that forms of substance move only in such directions as the motive powers of substance external thereto, which modify their atomic elasticity, determine, with no intrinsic power as such to change the motive tendencies of substance as a whole, we perceive the inevitability of its incessant motion, not only as essence, but in its every form of complex motive force.

The form of gravital force being essentially and aggregately spherical, the outer quantitative equivalent of every sphere and spherule is powerless, from excess of expansion, to move only in such directions as tend more or less directly toward the common centre. This is an eternal *insistent* or *procreative* power; the reversion of the atomic elasticity of the inner quantitative equivalent therefrom being the co-equal and co-eternal resistant or *re-creative* power.

The fact, that, in whatever linear direction a sphere of gravity may be halved, each half is the equal of the other, is self-evidence that the outer and inner quantitative equivalents of infinite gravity are eternally conjoined as correlative or counterpart forces.

10. In our ideal of specific generation the essences fruital to the elements of the female of a specific structure are inseparably ensphered atom per atom by the essences fruital to the elements of a male of the same species.

Their essential combination is purely nutritive. Each atom supplies the counter-force needed by the other.

The motive power of the inner or female germ of each twain-in-one spherule of gravity is a complexity of its *priorly inherited centripetal tendency* and its *present centrifugal tendency*, in consequence of its comparative plus condensation and reflex elasticity; whereas the motive power of the outer or male germ, the atmospheric embodiment or external representative of the inner or soul-germ, is centripetal from plus expansion, and inability to resist external pressure.

But, having descended from a higher altitude, a more mature plane of existence, it is correspondingly plus mature.

Hence the bases of each compound spherule are plus complex and minus mature, or mobile, in the degree the super-bases are minus complex and plus mature, or plus mobile. Or, in other words, the *two* modes of moving inherited by the inner or female equivalent supply the necessary fuleration or static force, which is of necessity the union of centripetal and centrifugal force; while the outer or male equivalent supplies the spaciality that permits the ingress of their needed bodily or nutrient essences *between* their culminate counter-forcitiveness as a whole. In our ideal of their genesis, the rays centrifugated from the sun — the nucleus of solar gravity — are, as regards motive tendency, prototypes of the bases, or female germs, of the spherules their essences become; those of the rays subsequently centrifugated from the nucleus, or sun of the solar sphere's ensphering sphere, and refracted from a higher altitude therein, when concentrated within the range of solar gravity, being prototypal of the centripetal tendency of their super-bases, or male germs.

This reversion of the sexual functions of the sub-

stancee constituting the bases and super-bases of the elements of form by a reversion of its spacial extension involves correlative extensions of time.

For example: the solar rays—which are substantially those radiated from the sun, ensphered by those radiated from the sun's sun, and which, in combination, concentrate as the nuclei of the *primary* planet-spheres—are plus mature or older, as such, compared with those subsequently concentrated within their respective ranges of gravitation as *secondary* spheres.

Henee, although the inner and outer equivalents of the planet-spheres may be equal in age as regards absolute being, yet as nuclei or planets, each, in the order of its more interior and later development, is minus mature compared with the earlier or more exterior planets. The solar rays, in becoming forced into these interspheres and into combination with their rays, are functionally male in the sense of being eentripetally forcitive as constituents of the atmosphere of a new sphere of gravity and as the atmospheres of its elemental spherules.

The planetary rays, having attained a still more complex mode of moving (centrifugation), functionally female, from the centre of the sphere to which the former are tending, are minus mature on a more complex plane in the degree the later solar rays by which they become atmosphered are plus mature on a less complex plane.

This counterpart disparity in their spacial and timal conditions is the result of the aggregation of essential substancee as interspherical organisms eonstituted of inter-cells and inter-repeated cellules by coalition toward the centre of a sphere, thenee their outgrowth therefrom by

the comminution of their compound spherules and the ingress and combination of counter-nutrient essences *between* their prime specific inner and outer equivalents.

11. The correlation of forces is purely in virtue of the adaptability of the essences involved to exchange their spacial and timal conditions. This is effected *periodically* by the general agents of force through their subjection to counter-spacial conditions during co-equal periods of time, but which is effected more or less *irregularly* by volition as regards the agents of thought whose powers of concentration and expansion are proportional to the subtlety of the substance involved. And yet we find precedents for the irregularities of volition *in the irregularities of temperature caused by irregularities in the spacial and timal conditions of different localities on the earth's surface*, notwithstanding the exact periodicity of the relative positions of the earth and the sun.

Now we purpose to show that these irregularities of temperature and volition result from specific modifications of the elasticity of the essential substance involved, which are as mechanically exact in their absolute bearings as the laws that govern the periodic revolution of the solar orbs.

The assumption that the local and temporary changes in the temperature of the earth's atmosphere are caused by the changes in its relative positions with regard to the *lesser orbs* of the solar system — between which there is assumed to be a continuous exchange of essential substance, which causes reciprocal modifications — is based upon the fact that every form of substance is modified by the electro-magnetic and thermo-luminous rays that pass from each and enter every other within the range of their respective radiatory forces. Photog-

raphy is positive proof, not only of this continuous exchange, but of the change in function of the rays by which the visible qualities of things become revealed to the sense of sight.

The rays diverging from their surfaces are functionally female; but, when subjected to the modification of a lens adapted to reverse their spacial conditions, they are convergent, functionally male. This is equally true of the rays of essential substance from differently conditioned forms that procreate the sense of sound, of taste, of smell, and of temperature and tangibility, when concentrated within the atmosphere of the recipient form.

12. Man's will power, or executive ability, with all his dominant reasoning faculties, is as truly prompted to do what it does, and not otherwise, by virtue of the effects of these rays of nutrient substance (all there is either of physical or metaphysical food) upon his organism, as is the lowest form of animal life moved to assimilate what is forced within the range of *its* executive abilities.

Although the diametrically opposing forcitiveness of essential substance *as a whole* includes, hence *is*, the substance or counter-forcitiveness of all its aggregations; and its intrinsic elasticity is the vitality of all their motions, yet the forms and motions of its ultimate individualizations are of necessity determined by their respective spacial and timal conditions within its infinite spaciality, and the infinite duration of its counter-motive powers. And although the direction of the motive tendencies of every ultimate spherule of form is mediate between that of its basic and that of its super-basic equivalents of essential substance, yet its form and the direction of its aggregate forcitiveness as

such are continuously determined by its altitude and latitude from the centre of infinite gravity, modified by its distances altitudinally and latitudinally from the centres of the consecutively more interior interspheres to which it may be constituent; all inter-forms being alike spheres of gravity. The direction of the earth's forceitiveness being continuously mediate between that of the entirety of substance above and below and bilateral to its position, the coalition and comminution of its essential constituents, and their freedom to move, are determined by their spacial conditions or spherical positions. As the cubic increase in space from its centre counterparts the cubic increase in space from the poles of its axis equatorward, it is readily perceived that the spacial condition of the earth's constituent spherules is determined by their position ; but, owing to the earth's orbital and axial revolutions, the spherical positions and spacial conditions of its every spherule are continuously changing. The same is true of its atmospheric spherules. Not a particle of its substance retains the same relations to solar gravity during the most minute measure of time. The solar rays that enter its atmosphere through its super-base, and become converged within its sunward and anti-sunward hemispheres, move in diametrically opposite directions : hence the directions of their elastic tendencies are reversed as regards solar gravity during equal periods of time. Those below the plane of the earth's axis being plus condensed in the degree those above it are plus expanded in continuous alternation, they are spacial and timal counterparts ; that is, the axial velocity of the nuclei of the spherules within the anti-sunward hemisphere, like the axial velocity of the more distant planets, is proportionally

greater in the ratio of their greater spacial freedom compared with the velocity of the nuclei of the less spacial spherules within the sunward hemisphere.

Here we assume, for reasons at once obvious, that when these plus spacial anti-sunward spherules, which are continuously being condensed within the less spacial sunward hemisphere (eight thousand miles nearer the focus of solar gravity, with the solid earth above them), are subjected to the sun's direct rays, their elemental spherules explode: thenec, being free, their empyreal nuclei rotate with the range and degree of velocity recognized as solar heat and light. The fact that thermo-luminous rays lose none of their intensity as heat and light by diffusion, however distant, provided the number of rays from a given area on the surface of a body luminously radiant be converged within an equal area, is our license for assuming that the absolute thermal and luminous force of the counter-tending rays within the planet-spheres is equal. This, because the fluids within their respective channels of circulation, upon which their every inter-constituent subsists, are compounds of the direct and reflex rays ascending from and descending toward the sun; their correlative or conjugal actions and re-actions being necessarily equal at every altitude; and because the planets and their atmospheres are correlative extensions of space, like the sun and its atmosphere,—theirs as a culmination. The fact that these orbs circulate within specific altitudinal and latitudinal limits within the solar organisms as truly as do blood-corpuscles within ours is our license for assuming that their "modes of moving" are repeated and re-repeated by their elemental and empyreal spherules within correspondingly lesser extensions of

space and time. It also licenses the assumption that the empyreal grade of essences, or the most minute comminutions possible to their respective altitudes and latitudes, are the bases and super-bases of each and all. Again: the fact that essential substance is condensive in the degree it is expanded, and expansive in the degree it is condensed, licenses the assumption that spheres and their inter-forms become refined and complexed by the continuous inbirth of essences from more and more spacial or higher strata between the central and super-central nuclei of earlier compound spherules, which become correspondingly condensed as more and more interior or immobile fulera, whose outer bearings correspond numerically with their prior comminutions or inward bearings.

13. In defining the doctrine of substantialism as summarized in these introductory evidences, we present the following deductions as fundamental tenets:—

1st, That substance is essentially elastic or alive, but utterly unknowable, except through its tinal or motile qualities consequent upon its spacial or spherical modifications; its motive tendencies being homogeneous under like spacial conditions, but heterogeneous under unlike spacial conditions.

2d, That tangible *forms* of substance are aggregations of intangible *essences* (those of each form being fruital to the forms of substance surrounding it, near and remote); the motive tendencies of which, in becoming reverse, by centripetation within its atmosphere, and organically combined as a tangible form, attain the ability to centrifugate like fruital essences; each form and its atmosphere being inter-repetitions of the earth and its atmosphere.

3d, That space in its infinite extension and in its every inter-individuation down to its ultimate points is alike spherical in form and utterly immobile as form; while time is the motivities of substance,—its infinite content.

4th, That the weight of substance as a whole within the sphericity of space is the prime *procreative* power involved in the nucleation of essential substance as form; while the resistance of that condensed below intermediary is the co-equivalent of *re-creative* power.

5th, That the gravital force of substance is its tendency toward equilibrium, regardless of direction, and is proportional to its condensation and expansion below and above mediocrity; increase in the velocity of falling bodies being consequent upon the increasing weight of the atmosphere above them as they fall below it, which is inversely as the square of distance from the centre of terrestrial gravity; their velocity being proportional to their quantity modified by their spaciality.

6th, That the forms and motions, or static and dynamic qualities, of things, express the states of being and modes of motion inherent in the *essence* of substance involved in their constitution; hence that the photospheric essences, which photography proves are continuously radiating therefrom, express *in their modes of motion* the centrifugal tendencies of those condensed as the forms to which they are respectively ex-constituent or fruital.

7th, That the modes of motion by these centrifugal essences—which, when condensed by passing through a prism and by re-divergence thrown out of focus, represent the prime colors red, yellow, and blue, and whose axial rotations or “vibrations,” and orbital range or

"refrangibility," increase in the order named — are, *per se*, those that procreate the sensations of taste, of smell, and of sight, when, by centripetation within their respective ranges, they become nutrient to these senses, as additional perceptive agents within the subjective universe of the sentient being that cognizes them; the orbital revolutions of heat-essences, and the axial rotations of sonorous essences, being too rapid to be cognizable by the sense of sight through their glintings.

8th, That essential substance *is* whatever it *becomes*, hence does and senses whatever is done or sensed by that which it becomes; and, whatever it becomes, it is unchangeably the same vital essence,—the soul and the embodiment of the objective universe.

9th, That our world, the outermost strata of the earth and the innermost strata of its atmosphere, increases in spaciality and refinement, and in complexity and maturity (which is, *per se*, the progressive development of its interforms and sub-interforms, *ad infinitum*), in the ratio of the earth sphere's outgrowth into higher altitudes of its proximate matrice (the solar sphere); and the latter's outgrowth to higher altitudes, so on, *ad infinitum*, in virtue of the inbirth within each of consecutively more spacial, more refined, and more complex, essences indigenous to these consecutively more outer altitudes from the centre of Infinite Being.

CHAPTER II.

1. THE *perception of the necessity* of a substantial essence regarded as the substance of things, which is at the same time an all-designing and an all-controlling power immanent in universal formation, is the highest evidence of its existence as such. The fact that philosophic minds in every age, whatever the laws or religions of their respective countries, so nearly agree as to what the principles of nature must necessarily be, while there has always been such discrepancy of opinion regarding the characteristics of the substance involved, is evidence that sense-perception is governed by unchangeable laws; while deductions therefrom, in being the synthesis of the qualities of things abstracted from what is embraced within the range of each mind's peculiar plane ofceptive creation, are necessarily in accordance with the differently-perceived qualities abstracted by minds of different capacities.

The attributes of this essential something, whatever the term applied to designate it, is identical with what is universally recognized as PRINCIPLE; which term, although universally accepted as significant of fundamental causation, is, in turn, variously defined.

According to Plato, *principle* is a universal creative power within which design is inherent. In perceiving

that nature's forms were ideas embodied in substance, he perceived that substance was the "receptacle of form," hence that the idea represented in each form was "innate" *in* the form; which is identical with the perception that the *principle*, or the *design*, of the ARCHITECT of the universe, is immanent in the substance of things. In the ultimate analysis of all the ancient theories we glean the same central idea, that *principle is archetypal*.

Coming down to modern theorists, we recognize the same idea, however distorted by its verbal clothing.

According to Locke, who is still regarded as standard authority in metaphysics, "Cause is substance exerting its power into act to make a thing begin to be." Stripped of its useless verbiage, this definition simply means, that this substance (which even the great champion of the non-innateness of ideas could not dispense with as a something necessarily self-fulcrative), *in* exerting its power into act to make a thing "begin to be," merely *acts*, thereby *makes*.

But out of what its power makes a thing "begin to be," is not explained.

If the thing which substance makes is made out of itself, substance, then the substance of the thing made was already in being. If not made out of its cause, substance, it must have been other than what it *is* before it *began to be*.

According to Webster, principle is "cause, source, origin," and also "primordial substance."

This latter definition is simply taking it as granted that the "principle," or "primordial substance," involved, is, *per se*, that which becomes expressed as the *substance of things*; which is virtually the acceptance of

their *self-testimony* as to what their characteristics are, from which there can be no appeal.

The acuteness of perception, and creative genius, of leading metaphysicians and cosmologists, are especially manifest in the assumption that nature's cause, or the "Divine Essence" as the majority choose to term it, is self-existent, omnipresent, omnipotent, and omniscient as cause or essence; while their lack of acuteness and of creative genius is equally manifest in their non-recognition of the self-evident fact that *no thing can by any possibility begin to BE what it IS IN ESSENCE, or BECOME what it ESSENTIALLY IS NOT, or end its ESSENTIAL EXISTENCE.*

2. If substance is the "cause or essence" of nature, in becoming the substance of nature it merely becomes so condensed and extended as to *be* within the range of sense-perception; that is, the creation of the objective universe is simply the aggregation of the essence of its substance as perceptible objects. Regarded as "primordial substance," aggregated in every variety of form, provisional to every variety of motion, necessary to nature's present degree of development, where are we to look for proof of its self-existence, its omnipresence, its omnipotence, and omniscience, but *in the tendencies of what it has become?* Being involutions thereof, the phenomena of nature are the inevitable effects of the archetypal tendencies of its essential substance, — its ultimate constituents. The assumption, by certain ancient philosophers, that the "archetypal power" involved in its becoming existent is the soul of nature, is identical with the present popular assumption, that the "designing power" involved is immanent in all things. Essential omnipresence, omnipotence, and om-

nisciencee is the ground of both: it matters not that the former is termed Pantheism, and the latter Monotheism. The innumerable speculations regarding the "ereation" of things all hinge upon the myths of past ages,—vague notions that there must have been a "beginning;" a time before time as measured by the motions of things was; a time when *nothing* began to become *something*; a time when the spacial and timal conditions, and the consequent qualities of this whilom "nothing," began to become its modifications.

3. And now the leading inquiry of the nineteenth century is, "Are living things the result of living things? If not of living things, when and where did life begin to become life? and when and where will life end, or cease to be life?"

The mystery involved is purely in consequence of the non-perception that the existence of essential substance as the content of infinite space is *per se its absolute or self existence* in the sense that it *includes within its spaciality the CONDITIONS of its existenee*, which is *per se self-completeness*.

Regarded as being, without reference to local presence or objectiveness, the spaciality of essential substance is the *here* and the *everywhere* of its infinite extension; while its motive tendency is the measure of all change,—the *now* and the *forever* of infinite duration, which, of necessity, excludes either beginning or ending.

The typal possibilities of essential substance are its intrinsic qualities, which, per force of its primordial form, are everywhere and forever effective.

The actuality of these typal qualities, as the static and dynamic tendencies of the forms and motivities of

contradistinct planes of sensible expression and sense-perception, in no way effects the self-existence and self-completeness of essential substance, which is alike the bases and super-bases of each and all.

The fact that a *conception* of the beginning or ending of the attributes causative to the actual existence of things is impossible is the highest evidence that a beginning or ending to that which *is* is absolutely impossible. *The mind cannot conceive of that which is not an attribute of its own being.* “Imagination cannot transecnd the realm of facts.”

The fact that life *is* is absolute demonstration that it never *was* or *can become* other than what it *is*.

The same is true of every other attribute of substance.

Were not the essence of things eternally in being, and eternally subject to the modification of space and time, which is *per se* its every condition, including pre-organization, and its every essential attribute, it could not have *become* sensibly expressed, or *be* the essence adequate to the development of human sentience.

The present existence of self-conscious individualities is absolute demonstration of their *continued* self-conscious individuality.

4. The fact that static and dynamic motive power—form and motion—is the all in all of life, its every attribute, is conclusive evidence that mind cannot *become* a non-motive force; while the correlative fact, that there is nothing within the realm of conscious perception upon which to base an ideal of a non-motive force regarded as the absence of motive power, is self-evidence that substance—the representative of motive power *in its conditional completeness—is self-poised and*

self-motile. The basis of its conditional completeness is its *form* or static motive power,—the unlimited sphericity and eternal fixedness of space, within whose essential points its ultimate essence is contained. The super-basis of its completeness is the *effect* of its spherical form, which forces co-equal quantities of its self-elastic essences into counter-spherical positions during co-equal periods of time; so that their elastic forces are equally convergent and divergent, or toward and from a common centre, as individuations of itself within itself.

Its form *forces* it to move, and its movements *force* it to form. Its intrinsic tendencies under the counterpart modifications of space and time, which become the inherited qualities of its self-motile and self-aggregated forms, force it to become whatever it needs to *be*, and what it is necessary it *should be*, and force it to *do* what it as an agental entity needs to *do per se*, which, normally regarded, is just what *is needed to be done*. It is a law unto itself, doing ever, *per force* of its essential needs, *that which the needs of the forms it becomes demand or require*. In becoming the sensible expression and sense-perception of nature, the essence of substance is controlled neither by chance nor by fate, but by the *omnipotence* of its own self-elasticity or vitality,—its self-organized completeness.

While religionists are looking beyond the “veil of death” for proof of life’s *endlessness*, biologists are looking into the “elementary condition of things” for proof of its *beginning*,—both alike blinded by the omnipresence of its self-existence. While accepting the fact that the qualities of things are all there is *known or knowable*, they overlook the correlative fact, that *power*

to know and what is known are all there is of conscious existence.

5. Man's comprehension of the phenomena of nature is necessarily commensurate with his comprehension of himself. Whatever his conceptive ability, he is to himself what he perceives himself to be,—no more, nor less, nor otherwise: so of his surroundings. His ideals are what he conceptively creates, the substance of which is what his senses subject from the objective universe. His first grand mistake consists in divorcing what he assimilates as nutrimental, hence additional to his mind or subjective universe,—himself,—*from* the objective universe, thereby divorcing his mind from its objective embodiment, including his own objective or nuclear organism. While he perceives that the modes of moving by the surface-essences of objects, in causing corresponding motions by intermediate essences, cause corresponding motions within his mind, he does not perceive that the perception of objects is effected by the forcible inbirth, within his organs of sense, of essences set in motion by their radial essences, which repeat therein their modes of moving, or forms of force as wholenesses. Neither does he perceive that while these essences, thus set in motion by the internal forcitiveness of these objects, are *de facto* a part of their atmospheric motive power, they are at the same time as truly a part of his internal self-consciousness, because the bases of corresponding forms of force within his mind, or subjective universe.

When the atmospheric essences that vibrate above the footprints of the master shall have become a part of the self-consciousness of his devoted dog, revealing to him the direction whence the master came, and

whither his footsteps are tending, they are essentially a part of both ; and, in being a part of the earth-sphere, they are a part of its procreative and gestative substance.

The surface-essences of a form, which are *per se* its essential types of force,—hence its essential qualities sensibly expressed,—in becoming nucleated within the sentient organs of another form, simply become the perceptive agents congenically capacitated to cognize that which they *are* as essential constituents. The continuous reversion of the motive tendencies of its homogeneous essences as regards direction, in consequence of the subjection of equal quantities to counter-spherical conditions during equal periods of time in continuous alternation, culminates as the harmonies of nature, which is necessarily a unit.

6. Mind, in its ultimate analysis, is simply *power to know*. In its culminate synthesis *it is the sum of the ideals of the objective universe subjected thereto*,—the all in all of positive knowledge.

Man's psycho-physical organism is only the basis of his sentience. However adequate to acquire knowledge,—and adequate it is, in virtue of being constituted of the atmospheric essences that represent the essential qualities of universal formation,—yet its sentient agents must be continuously nourished, or conjugally mated, by combination with like atmospheric essences sensibly expressed, thereby rendered *knowable*. His *power to know* progresses by adding thereto that which it essentially *is*; viz., the essential ideals or agents of sentience which it abstracts from the objective universe. All forms are made up of these essential ideals. When abstracted by sentient organisms, they are instantane-

ously transformed as their agents of sense-perception. These, in recognizing like external essences, as tangibility, sapidity, odor, light, or sound, in accordance with their status of complexity, and degree of development, produce in these sentient organisms the abstract sensations termed feeling, taste, smell, seeing, or hearing, as the special re-actions of their organs of sense. But, in order to comprehend the range of their respective motor and sensor nerves, we must regard the nervous, the alimentary, the lymphatic, and sanguiferous systems—all of which are rooted in the body, and branched as the cephalic system within the head—as the bases of special sense; thence must regard their respective circulating media as the sentient representatives of the more and more complex animal species provisional to the human species, in which their sentience culminates.

That the life, the sentience, and intelligence of our world, is that pertaining to the organisms that live, and move, and have their being within it, is unquestioned. That it has a self-conscious soul other than this is popularly regarded as preposterous, so plain is the proof that its so-called “inorganic matter” is simply provisional to the development of these organic forms.

And yet we have their self-testimony, that no element of form—not even the metals, whose impalpable dust is cohered by the intrinsic prehensibility of the empyreal elements—exists uncombined. Hence all are organized, hence possess counter-motive force, hence are life-sustaining: otherwise they could not be provisional to the existence of more complex organisms. The fact that they are life-sustaining is self-evidence that they are *alive per se*, however latent the vital heat of those aggregated as the earth’s solid and liquid compounds.

We talk of the nervo-vital fluids that circulate as messengers of thought within our nerves, of the life-blood in our veins, and of the breath of life within our lungs, as the living soul, never recognizing as such the vessels within which these vital agents are developed. These vessels are the homologues of the strata of space within which our world's different stratal forms—the prototypes of these vital agents—are developed. Our world, or present strata of subsistence, is simply the sum of its internally-developed elemental spherules. The fact that a portion of these spherules are aggregated as its objective forms does not change their identity as such, or change the intrinsic elasticity of their essential substance.

Each form is the sum of its internally-developed elemental spherules. The fact, that, in each sentient organism, a portion of these are temporarily staticised as the vessels within which its vital agents—the sum of which is its living soul—circulate, does not affect the intrinsic or absolute elasticity of the substance involved. The static spherules are simply the *ova* of the dynamic spherules, hence are on the *embryonic plane* of formation; while the parent spherules are on the *mature plane*. The continuous hatching of these ova necessitates the continuous deposition of like ova as repairs of the various vessels that make up the static organism,—the temporary machinery through which the variously-organized dynamic spherules manifest their inherited tendencies. This law of outgrowth through ingrowth, which is necessarily universal, is simply the coalition of essential germs on the ovum plane as the substitutes of those that become comminuted by interstitial embodiment on the mature plane. If, as assumed,

our world's strata of different compounds are prototypal of the different vascular systems in animal organisms, then the nervo-vital forms developed within the lowest or carthy stratum, which are continuously becoming outborn into, through, and from each higher stratum, are prototypal of the forms of life developed within the alimentary of animals, which are continuously becoming outborn into, through, and from the lymphatic, the sanguiferous, and the cephalic systems; the static embodiment of each being builded and differentiated by its own ever-living soul. Insects, in virtue of their essentially dynamic soul-powers, are capacitated to construct, not only their larval forms, but their pupal incasements, within which intermediate worlds they are capacitated to so reconstruct their organs from their stock of basic food combined with the atmospheric essences surrounding them, that they emerge therefrom into a higher world, with organisms adapted thereto; some species repeating and re-repeating this world-building process, until, by doubling and quadrupling their mobility, they become matured up to the altitude of the most complex air-breathers. This is self-evidence that our associated essential powers are destined to attain conditions of existence as much more elevated than theirs as our organisms are more complex.

Hence we assume that our world is a temporary matrix, whose aggregate essential germs, in becoming combined and individuated in the various types of form that subsist within it as its temporary organs, attain such motive tendencies as will secure their egress therefrom, and their ingress within, a more mature world as its temporary organs. Thus on and on; each lower condition fitting them for a higher, *ad infinitum*.

The abstract qualities of objects are actually *a part of their motive power* impressed upon the essential substance assimilated by our senses, and synthetized as ideal objects. The objective universe is the embodiment of ideal types of form. Its complex types are reciprocally and continuously impregnating each other with their essential types volatilized as their "representative images." It is only through the modes of moving by their surface-essences that they become sensibly expressed, or *knowable*. Hence the necessity of the presence of the objective universe as the *procreative* power, and of mind as the *conceptive* power, for the repetition of its forms and functions within our nuclear organisms as the nuclei of the mind's subjective universe. The bases of whatever man cognizes *is necessarily innate in his essential organism, his real selfhood*, because it is constituted of the expressed image of every form in nature causative to its objective expression as a microcosm on an intermediate plane of maturity.

Being *per se* the re-expression of creative essence, the conscious ego, in re-creating the images of things from their fruitful essences, which express their qualities, simply *does what it is*.

That perception is both exterior and interior, each man knows for himself, and needs no enlightenment as to where his senses are located. His entire organism is the nucleus of his mind. Correlated as it is with every form and mode of motion, including every grade of comminution, and coalition of substance, which constitute the various planes of being as regards sense-perception with their various degrees of complexity, the human organism *is the re-expression of the Infinitude of Being in embryo*.

On the essential or soul plane, man now *is* all that he ever has been, or ever will become, because forever one with INFINITY. In being an inseparable part of the Essence of Being, which is intrinsically alive, and inherently self-formative, man's self-consciousness never is, or can become, disconnected from its embodiments.

His outer consciousness of these infinite correlations is necessarily in accordance with his plane of development as a psycho-physical being. Whatever his absolute status, he is to himself that, and that only, which he conceives as belonging to his selfhood.

The fact that he is what he conceptively creates is not and can not be a fact to him, until he conceive it to be such.

7. As the religious is the dominant element in human nature, the whys and wherefores of man's religious experiences and speculations are of the first importance in studying the origin of his religious creations.

Science and philosophy have been as unsuccessful in their attempts to eradicate from the soul of man the sentiments of moral obligation to, and of hope and trust in, an unseen responsive power, a something capacious to supply nature's every need, as the innumerable phases of physical torture. Man's aspirations and outreachings are evidences that he *needs* the unseen, the higher, the better; are evidences that it is the basic counterparts of that which he aspires to be seeking to become that which he as their culminate representative is destined to be.

Were not every type of form constituent to man's strata of subsistence (whose essential types, in growing up as their representatives within his organism, become its growth) included in his archetypal complete-

ness, they never could become additional to his self-hood as mental images.

However stinted by temporary lack of normal nutriment any of these types, traits of character, may be, they must and will have normal expression as the spacial and timal conditions included in his archetypal completeness become actualized. From its centremost stand-point, the conscious ego posits its mental images exterior thereto in the same order as their prototypes are cognized by sense-perception. From its outermost stand-point, when the senses are not resting upon their prototypes, the conscious ego, in reflecting upon the images of external things and their respective localities in space, by virtue of its inherent expansibility, enspheres the whole objective universe, lives, as it were, above and surrounding it, from which stand-point it posits every thing, including its specific organism, in reverse order interiorly.

In studying himself and nature from these opposite planes of mental prospective, ignorant of the inevitable progress of his essentially indivisible powers, and regarding them as arbitrarily delegated, man persistently divorcees the limitless from the apparently limited, and regards what is perceived from the inner stand-point as his "finite powers," — himself; and what is perceived from the outer, as an "infinite power." This ideal of infinity is simply his highest ideal of human perfectibility. Being *per se* that which he regards as an omnipresent, omniscient, and omnipotent Being, he naturally concludes that this Infinite Being knows his most secret thoughts; hence very wisely concludes that he is forever under the surveillance of this all-seeing, just, and retributive Being.

In the childhood of humanity, man embodied this indefinitely-conceived power in various forms,—forms symbolic both of good and of evil, in accordance with his own moral status, which determined the character of his ideals of good and evil. First he grew to fear, thence to propitiate, thence to worship, this ideal, in accordance with his desire to be feared, propitiated, and worshipped as an arbitrary ruler. Governed, as the race then was, from individual infancy by the paternal parent alone, who subsequently became the father of his tribe,—the maternal parent, because of her lesser physical powers, being held in utter contempt, with every womanly characteristic rendered servile to man's,—it was in keeping with these influencees to create a popular belief that this super-jacently located Deity, man's ideal of the physical infinitized, was exclusively masculine, with none of the gentler virtues of femininity to lessen or tarnish his self-idolized virility; and also in keeping with the customs of patriarchal governments to regard this ideal of pure virility as the unseen or Heavenly Father, and to fear, obey, and honor him as the Supreme Ruler of heaven and earth. As they could only interpret the wishes of this heavenly Ruler by consulting their own, which were necessarily identical, arbitrary rulers on earth claimed to be his vicegerents, and to rule by rights divinely delegated. Hence the motto, "Fear God, and honor the King."

Judging from the supreme power and vindictiveness of savage rulers, it is little wonder that man regarded the phenomena of nature as the direct effect of an almighty, unseen Power with human attributes, dealing blessings and cursings to whom he would, according to his own good pleasure.

It was simply natural that he should resort to hypotheses to account for these apparently antagonistic manifestations; thence to seek for mediators to save the race from this mixture of good and evil, ending with their separation into two opposing kingdoms corresponding with his nether and upper planes ofceptive creation,—a kingdom to which those adjudged to have been worthy servants of the Prince of Goodness, in accordance with his ideals of goodness, were transported after death, and eternally rewarded with unalloyed happiness; and a kingdom to which those adjudged to have been servants of the Prince of Evil were doomed at death to unending tortures, forever beyond deliverance.

This view of the earlier conceptive creations of man fully accounts for the innumerable varieties of religious deifications, supreme and mediatory, that are now popularly accepted by the human family as a whole. The especial divinity of each founder of a new religion, or reformer of an older one, is always the counterpart of himself; while that of each individual is found to progress in the very traits, and in the exact ratio, that he himself progresses.

8. Man's highest conceptions of all that is best in every department of life is the very God he needs. He can neither appreciate nor follow the teachings of any other. He cannot if he would, and would not if he could, part company with this God. He is the ever-present power that ever and forever leads the would-be good man on to higher and higher perceptions of what is truly good.

How ardently he prays, pleading in soul agony, for forgiveness of sin!—prays to be aided in thinking

better thoughts, and in doing better deeds, and grows strong in his resolves to be and to do what he prays to be aided in being and doing, the need of which prompts the praying, which, in turn, strengthens the resolves more and yet more as the perception of the necessity of still better thoughts and better deeds become more and yet more clear. How fervent his gratitude for the inner light that comes of the struggle! What holy cheer as he clings closer and still closer to this unseen but by no means unfelt power! He need not be told that it is his own conceptive creation of needed aids that he prays to, trusts in, and whose teachings he strives to practise. If he needs to know this, it is already revealed, as is every needed truth. If he still needs arbitrary inducements to be good, it is evidence that he has not yet learned to love good for goodness' sake, and that he still needs to believe in arbitrary rewards and punishments.

It is not man's innate sense of justice to others, which is necessarily based upon what he perceives is useful to himself, that is at fault. But as long as his highest ideal of Infinite Justice is a traditional incarnation of human selfishness, with unlimited power to do whatever is for his own glory and good pleasure, it is natural that man's appetites and passions should prompt him to do likewise. Although the God of tradition is perforce of human needs continuously progressing; yet, as long as man divorces what he deems his finite powers from what he regards as infinite, he cannot perceive that they are necessarily one, or perceive that whatever he becomes consciously correlated with, in the sense of supplying what is additional to his stock of knowledge, becomes a part of his consciousness.

He cannot *know himself* until he perceives that what he senses *that he is as a sentient being*.

In a word, not until man perceives that he is the medium between two planes of being as regards precedence in sensible expression, and maturity in sense-perception (that is, between the *outer universe*, whose essential types of form, the fruitage of its every form of complex motivity, have *procreated* his organism as *its image in embryo*), and that which he, as its representative on the intermediate plane of maturity, has *in-created* as *his subjective universe*, the image of each becoming incipient as such in the order of the recognition of its prototype within the *outer universe*, can he *begin* to comprehend his infinite possibilities. Neither can he realize that his desire for immortality is the immortal within his being seeking to become, on the inner plane, a repetition of its prototype, viz., a unity of infinite parts.

Although aware that he can at will occupy any and every mental stand-point, from the innermost of his earthly form to the outermost of the visible vault of stars, and inferentially to a limitless beyond, thence can study the phenomena of nature in accordance with his conceptions of what they reveal, or, in other words, that he is *ubiquitous* within his own subjective universe, yet he persistently divorces the infinite from the finite, regardless of the self-evident truth, *that, if there be an infinite, there cannot be a finite*.

An infinity is necessarily a unit, and no amount of self-division can increase or lessen it. Once one is one; twice one is one; or one-half of one is one-half of its wholeness; one-fourth of one is one-fourth of its wholeness; so on to fractional infinity. It is ever the same integer multiplying itself within itself.

And this is just what the infinitude of being is doing,—repeating every preceding or more outer type of form within every succeeding or more inner type, the archetype of which *includes* these *seriatim* inter-repetitions within its infinite HERE and its eternal NOW. Failing to perceive his oneness with the Infinite, the would-be good man deplores his short-comings with unfeigned humility. Judging himself by his ideals of what he perceives to be possible to his powers, what he actually desires to be, because necessary to his well-being, he continually accuses himself of not being as good as he knows how to be.

He does not take into account that he himself *creates* those ideals,—idols, if he grows to worship them,—and endows them with the highest qualities conceivable from his plane ofceptive creation,—qualities abstracted from the highest models of perfection,—and surrounds them with the highest privileges perceptible; in a word, creates their conditions in accordance with his highest conceptions of what is necessary to develop such perfection,—conditions compared with which his own are but the crudest type. Not favored with these, to him, perfect conditions, he cannot *be* what his ideals are, or *do* what they do. Yet he does better than he knows, because he does not know that he is continually striving to be what they are, and striving to make his conditions accord with theirs, and thereby is continuously bettering them by his strivings. When, as a species, man shall have become sufficiently matured to perceive the necessity of laying aside the fossiled ideals of past ages, as he lays aside the garments that fitted his youthful form, perceiving them to be equally unsuited as standards of thought in a more mature age, and accepts his

own ever-progressing ideals of what is needed in the present, he will begin to know himself as a progressive being. He will perceive more and more of his future destiny from the teachings of the ever-present ideal of his future self, his ever-progressing guide and savior, the true prophet, telling him ever what he needs to *do* and to *be*, approving and reproving, judging and defending him ever and for ever. He will then comprehend that this true savior abides in him, and is one with him, even as the all of good is of necessity inseparable from its infinitude of parts. He will then understand that the kingdom of good or of heaven is "within him," and that it consists in righteousness, joy, and peace. The innate good within him being quickened and nourished by the infinite good without, he "works out his own salvation." He is intensely happy, because his lower traits, his appetites and passions, are harmoniously subservient to his higher traits, his religious emotions, which *awaken*, from a perception of goodness and justice, under the guidance of reason. This is a new birth. He prays in faith, believing that he has what he asks for, in the sense that he purposes to *be* and to *do*, hence *is, in purpose*, what he asks to be aided in being and doing.

It is in this sense that "faith is the *substance* of things hoped for, and the *evidencee* of things not seen." The good man *knows* that he is *now* joint heir, with his real savior, his saving faith, to the kingdom of infinite goodness.

It matters not whether man's savior as a personality belonged to a past age, or is a messiah yet to come, or one assumed to be such in the present, inasmuch as it is the *ability* to save man from wrong-doing by directing

him rightly, ascribed to this personage, that constitutes the *saving powers* needed by the would-be good man. Like himself, his savior is what he conceptively creates as the attributes needed by himself, in order to be what he assumes this savior to be; viz., above and beyond the influence of temptation, to be other than a personification of goodness.

In creating what he desires to be, and what he feels adapted to become under adequate conditions, he has idealized a *God*. And, so long as he believes in the *divinity* of his savior, he is saved. But when his savior becomes like other men, subject to like passions, he is necessarily *in purpose* the personification of his ideal. Having no higher ideal, he is without hope of higher good or higher attainments than the gratification and indulgence of his animal appetites and passions. And yet, as the representative of the Infinite *Ego*, or the I Am of the outer universe, *in being the Ego or I Am of his own in-created universe of self-existent entities*, whose degrees of maturity and complexity are repetitions of those of the outer universe, and correspondingly subject to his volitions as he is to the principles or voices of nature, the volitions of the Infinite *Ego*, his psycho-physical relations therewith, are necessarily inseparable. This, because they are *inseparably one*; the organism of the human *Ego* being the repetition of the organism of the Infinite *Ego within itself* on the plane of human development.

9. This is comprehensible only as we perceive that the *form* of outgrowth is essentially and absolutely spherical, and that for every additional grade of maturement in outgrowth, and increase in complexity of movement, there must be an aggregation of the *same*

forms of forceitiveness below it as ingrowth, as the bases of outer expression ; thence perceive that this is effected by the concentration of the matured essences fruital to the elements of every more mature and more complex outer form of force within itself. This perception must also include the analogically-proved fact that elemental spherules are specifically distinct in structure, because coalesced as ingrowth, or comminuted as outgrowth, within areas of space differing in size and shape in accordance with the spherical position and spacial condition of their strata of subsistence. Again : the perception of the necessity that atmospheric or male elemental germs penetrate below or around, as well as to the eentremost of, their nuclear counterparts, licenses the assumption that their substance is more condensed than that of the nuclear germs they atmosphere, in like manner as the males of lower forms are smaller than their respective females.

The analogy involved is the basis of our assumption, that at and during puberty the atmospheric essences of each sex become introverted, as the atmospheres of their nuclear essences, within their respective organisms at definite periods of time ; hence that their ova are repetitions of their respective conditions on their essential or embryonic plane of development, and as such are distinct self-living and self-sentient entities ; those of the male being plus mature on a less complex plane of being, while those of the female are minus mature on a more complex plane.

In virtue of the exact counterpart disparity between the spacial and timal conditions of these pre-specific types, their ova combine as the embryos of their specific parents on intermediate planes of maturation and complexity. For example, the essences of the oxygenic

spherules within the earth's aqueous stratum (functionally female or centrifugal) are the bases, and the essences of the oxygenic spherules within the earth's super-aerial stratum (functionally male or centripetal) are the super-bases, of the oxygenic spherules within the earth's aerial stratum; the sub-aerial being plus static in the degree the super-aerial are plus dynamic compared with the motive tendencies of the essences fruital to aerial oxygen, equal quantities of which descend to the maternal, and ascend to the paternal stratum.

In the progress of our work we hope to show clearly that this principle of outgrowth through ingrowth is necessarily the repetition of the forms and motions of the earth's earlier-developed compounds and complex forms as the consecutively more internal organs and functions of its later-developed forms in the order of their advent. In treating of our present world of forms as being compounded of quantitative equivalents of essential substance, so conditioned as regards their spaciality and mobility, that the basic equivalents represent the spacial and timal conditions of our planet in a past as far removed from its present spacial and timal conditions as the conditions which the super-basic equivalents represent will remove it into a future, we shall be forced to examine in detail the extremes of the physical conditions involved, including the metaphysical.

10. Hence, regarding man's religious sentiments as having their bases in his emotional or moral nature intermediate between his more mature but less complex animal appetites and passions, and his less mature but more complex reasoning faculties, we will study the progress of his religious conceptions in connection with the progress in complexity of his commensal forms.

His non-conception that their increase in structural complexity culminates as his structural and functional progress has its basis in his unconquerable egotism. His persistent assumption that "all things are made for *my* use" completely overshadows the fact that he is what he lives upon; that is, what his specific soul-germs,—the inseparably-combined soul-germs, moulded within the elements of his counter-parent forms, have assimilated as nutriment; viz., the elemental soul-germs fruitful to his commensals, whose modes of moving represent respectively their tangibility, their sapidity, their odorosity, their light, and sound, within the organs of sense by which they are subjected, parts of which were priorly parts of his own essential qualities *returned* subsequent to their re-moulding within said commensal forms. The same being true of every preceding species, the structure and consequent sentient powers of each are increasingly complex in the order of its later advent, in virtue of being the culminate representative of the elemental soul-germs of its commensals by which its specific soul-germs became embodied.

The conditions provisional to the advent of new elements, and new species of structure, result from an increase in numbers of pre-existing species, which is, *per se*, an increase in the modes of motion by our world of forms as a whole, within which all are organically moulded and commensally gestated; progress by differentiations in specific structures being the result of an increase in the number of their elements. If, as assumed, the prototypes of intestinal animals possessing only the sense of feeling and taste were its earliest species, and which were provisional to the existence of those possessing greater and greater complexity of

structure, with additional powers of sense (their greater numerical values being proportional to their lesser complexity in modes of moving), then the senses are relatively plus mature in the order of their lesser complexity, in consequence of their earlier advent. This accounts for the long reign of the appetites and passions over the emotional and intellectual faculties. Not perceiving that the reasoning or cephalic powers are culminations of the instinctive powers, which, on account of their apparent spontaneity, are assumed to be God-given, the public mind has denounced reason as antagonistic thereto, because, judging from these lower planes of thought, it is self-acquired and volitional; and, owing to its disastrous errors consequent upon its immaturity, it has been regarded unreliable as a guide, and repudiated as detrimental to human progress in its emotional or religious aspirations. This still is, as it always has been, a prudential restraint by its parent faculties. Restraint is necessary to growth in right directions; and religionists and scientists are equally at fault in regarding man's emotions and reasonings antagonistic beyond what their mutual progress necessitates.

11. The fact that acephalous animals are self-provident, living and multiplying with equal independence as cephalous animals, is self-evidence that the head, as the seat of special sense,—the correlations of whose functions culminate as the reasoning faculties,—is the latest and crowning organ of animal life, in the sense that reason represents the instinctive functions of every bodily organ by its *volitions*. But the correlative fact, that man is forced to do just what every other form of life is forced to do, viz., to subject the motive powers inherent in external substance as his individual motive

powers, is self-evidence that his volitions in response to the perceptions of outer consciousness are but the *projection* and *reflection* of the intuitive volitions of his bodily organs; all needs being internal. The reasoning faculties or functions of special sense are media between the outer universe or Infinite Organism, and its intertype, — the human organism; and their outreachings are inseparably correlated with the inreachings of the internal or intuitive functions of the heart, in their omnipresent ramifications as regards the organism,—that which the heart's specific and pre-specific vascularity constitutes.

It is solely in virtue of the essences introverted through the organs of special sense, in response to the outreachings of general sense, that *the existence, the presence, the power, and the wisdom involved in the infinite organism, are revealed to the emotional nature of man.*

The functions of the heart and those of the head are not and can not be antagonistic as regards the highest good of what they respectively represent. Conscious knowledge is a compound of what is revealed through the desires of the inner or embryonic human organism, and of that which exists in a counterpart condition in the outer or more mature organism of nature; that is, in a condition objective to, and subjectable by the senses.

Man's non-perception that his organs of sense are all there is of his organism, and that what is needed to grow each is what each is adapted to sense or to feel, and to assimilate as growth from the sensibly-expressed essences of the outer organism of nature; and his non-recognition that this growth is the *substance*, the *spacility*, and the *motility* of the essences subjected, is the veil that prevents the perception that his mind, or his

universe of concepitive creations, is, of necessity, a transcript of the outer or parental universe, in the sense of being what the essences abstracted therefrom as its tangible, sapid, odorous, luminous, and sonorous properties, have become as his psycho-physical organism. His organs of general sense, or sense of contact, is his entire nervous system. His organ of taste, that culminates in the mouth, is the entire alimentary system, which is made up of a continuous series of mouthlets and sub-mouthlets; those within the bowels having anal openings. His organ of smell, that culminates within the nose, is the plieations of the olfactory membrane. This lines not only the nasal and bronchial tubes, and the lunglets of the lungs, but is continuous throughout the entire sanguiferous system. His organs of seeing and hearing are distinct organisms, which are respectively adapted to reflect and re-reflect external essences, whose respective modes of motion express light and sound. These perceptions unveil the fact that man's physical organism is simply the medium through which the essences of his metaphysical organism are inducted during its latest plane of nuclear gestation, it being the homologue of the membranes through which they were endosmosed during its uterine and ovum gestation, the casting-off of which is analogous to the exuviation of the shells of crustacea, the skins of serpents, and the pupa-cases of insects.

12. Leaving, for the present, all speculations with regard to the final exit of the soul of form from our plane of sense-perception, we proceed to present other phases of the assumed antagonisms between religion and science.

The summing-up of all complaints by each is the

grave charge that the other is a *hindrance* to the progress of truth. This is the disagreement of the jurors of all ages down to the present. And yet each has progressed equally by the aid of the other, without a recognition by either of their mutual assistance. And each is as confident as ever of final triumph, neither perceiving that the downfall of either would be the downfall of both, or that the success of either is the success of both. And, in their mutual progress, each alike has become divided and subdivided into innumerable sects on the philosophy of religion and science, each sect battling every other sect with a fury of zeal equal to that of the original contestants. Each alike is still unable to perceive that this diversity of opinion — the result of progress in thought — is the mainspring of ever-increasing growth both in religion and science, by multiplying their centres of growth, and complexing their motive powers, thereby increasing their efficiency in the ratio of their increasing freedom to express their thoughts. So all alike continue to battle for still greater freedom to express their more and more complex thoughts, at the same time battling against every other sect for doing the same, no one perceiving that their mutual tyranny is the very stimulus needed by each to strengthen the love of liberty, and at the same time prevent an undue exercise of it.

We purpose to illustrate in the physiological department of our treatise the fact that the sanguiferous system, of which the heart is the bicentral organ or inner representative of man's emotional nature, is the common offspring of the alimentary and lymphatic systems, which, in turn, are earlier and later outgrowths or offspring of the sensor and motor systems of nerves;

and that its circulating media or dynamic agents are, as regards motive tendency, compounded of the more mature or motile, but less complex germs fruital to the circulating media within the nerves of general sense, and those fruital to the more complex, but less mature or motile media of the alimentary and lymphatic systems.

13. The first rudiments of a head, or cephalic system of special sense, consist of a series of nervous ganglia around the mouth of the lower forms in the animal series, with efferent or sense-expressive, and afferent or sense-perceptive nerves, by whose extensions and contractions the mouth, or prime organ of taste, is opened and closed. These ganglia or reversed nerves are sensibly expressed on the alimentary vessels in animal forms destitute of even a well-defined lymphatic or water-vaseular system. Hence the nerves of special taste exist prior to their inter-complexity as the lacteal and lymphatic glands within which the interior capillaries of the veins and arteries anastomoze, and where they receive their needed nutrient or expansive fluids from these parent systems in exchange for their ex-nutrient or over-expanded fluids.

Being their common offspring, the functions of these capillaries — the bases of the sanguiferous system — are compounded of the greater motility of the fluids within the nerves of general sense and the greater complexity of those within the nerves of special taste. The organism's surface-pores being its organs of general sense, and the innermost pores of its alimentary and lymphatic vessels, its organs of special taste, their counter-tending fluids, which are *per se* counter-sexual germs, are combinable as quantitative equivalents of condensive and

expansive elasticity. In virtue of their dynamie equilibrium when combined, these eontinuously ingressing basic and super-basic germs are adapted to beeome, not only the bronchio-sanguiferous system, or culminate organ by which aerial germs or odorants are subjected as sentient agents, but, through more and more motile and complex rootings and branchings, they become the culminate organs by which empyreal germs on the plane of meteoric water and on the super-aerial plane become subjected as sentient agents capacitated to cognize the luminous and sonorous qualities or expressions of external nature. By regarding the nerves whose vita-sentient fluids tend eentreward from its surfacee as its male matriees, and those whose fluids tend surfaceeward as its female matriees, we idealize the fact that each organism moulds the motive powers or elasticity of its ultimate germs, henee is the artifieer of its every organ from its primordial cellhood onward; the nutrient substance involved being the elemental germs of external forms assimilated as basic and super-basic, or plus and minus condensed food.

In reeognizing the forms of life generated within the alimentary and lymphatic systems as intertypes of those generated beneath the earth's surfacee, and within its strata of surfacee and meteoric water, thence reeognizing those generated within the sanguiferous system, whose breath of life is supplied from the lunglets, within the middle layer of the larger vessels, through the contractions and expansions of their respective heartlets, as intertypes of those generated within the aerial stratum, we perceive, that, if the former are provisional to the latter, then the forms of life within the aerial stratum are provisional to correspondingly more complex forms

within the super-aerial stratum, in like manner as those within the range of the lymphatics in the sanguiferous system are provisional to the organs of speelial sense within the organism's super-aerial stratum *above* its lymphatics, or system of meteoric water. The assumption that the essences radiating from these to us invisible forms, combined with those radiating from their nuclear counterparts beneath the earth's surface, are so modified, that their combined modes of moving correspond with the expansions and contractions of our nerves of vision, is lieensed by the fact that no orb or object is visible only when its rays are directly opposed by like rays from other orbs or objects equally eondensed. Like the sun's rays above the eerulean vault or super-aerial stratum, or like their speetra above the violet rays, the forms and motions of their spherular nuclei are too minutely eomminuted and diffused to make an impression upon the lenses of the eye.

The fact that the hemispheres of the human brain, whieh have grown up step by step through the animal series, do aetually atmosphere the ganglia of special sense and their bases, the *medulla oblongata*, in like manner as the earth's strata of objeetive forms are atmosphered by the super-aerial stratum, corroborates the assumption that these hemispheres are aggregated of substance on the same plane of sense-perception as that which atmospheres these objective forms, whose representative images, when subjected as sentient agents within the organs of vision, inherit the ability to cognize like images. In accordance with this law, the earth's constituent essenees were proximately fruital to the maternal or solar sphere, and ante-proximately fruital to the solar sphere's ensphering sphere.

During their centripetation within the solar sphere, these rays of essences were functionally male, or *procreative*, because fruitful to a more outer and more mature sphere; but, during their re-ascension from its centre, they were functionally female, or *re-creative*, because reflected centrifugally from the nucleus of a more inner and less mature sphere. In virtue of their inherent ability to move in this *additional* direction, they are adapted to and do become the bases of new species of solar elements *in becoming diametrically opposed to, and inseparably atmosphered by, the procreative essences subsequently centripetating at their different altitudes of comminution.*

14. The bases and super-bases of solar elements are minus and plus mature as such, because centripetated from lower and higher altitudes of the super-solar sphere at earlier and later eras. Those priorly centripetated as the procreative essences of our sphere, when reflected from the earth, are the basic nuclei; and their quantitative equivalents of subsequently centripetated essences are the super-nuclei of its different species of elemental spherules. From the fact that the elements of our stratification of the earth-sphere (our world) combine in four distinct forms, viz., as earthy, aqueous, aerial, and super-aerial compounds, we perceive that their constituent elements, owing to their different degrees of comminution, are indigenous to different altitudes; those within the aerial and super-aerial strata of comminution being expanded in the degree those within the aqueous and earthy strata of coalition are condensed. This more obvious fact reveals the less obvious fact that the spherules of denser elements, as they ascend, expand by comminution in

the ratio those of rarer elements condense by coalition as they descend.

And these two facts reveal the combined effect of this gradation in spacial extension; viz., that all the elements constituting the compounds and complex forms that culminate as our stratification, or the world upon whose essences we proximately subsist, become outborn between its two rarer and its two denser strata, at which altitude the condensive force of the more spacial or male essences descending toward it, and the expansive force of the less spacial or female essences ascending from it, are equal. This revelation includes a revelation of the principles involved; viz., that all the elements in the two atmospheric strata *eo-exist* in equal quantities, but in reverse spacial conditions, within the two nuclear strata; the excess of space or mobility, and consequent centripetal or condensive tendency (a less complex function), inherited by the essences fruital to the former, being the exact counterpart of the lack of space or immobility, and consequent centrifugal or expansive tendency (a more complex function), inherited by the essenes fruital to the latter. And it also includes the revelation that these counterpart disparities between the essences fruital to the counter-spacially conditioned elements of form (the elements *per se* being indigenous to specific altitudes from the centre of a sphere of gravity or a complex form of force) *condition* their combination as new elements, which ripen in *eo-equal* quantities as counter-sexual elements at the same altitudes as their respective parent elements; the male spherules of each species being at altitudes above mediocrity corresponding with the altitudes of the female of the species below it. This perception that the func-

tions of sex are purely the result of the counter-spacial conditions of the co-equivalents of essential substance which combine as the elements of form, is *per se* the perception that the substance of form is the aggregation of its ultimate constituents; and that their inherited motive tendencies, which bring them into inseparable combination from opposing directions, become reversed thereby; so that each equivalent is adapted to move in a *diametrically opposite direction*. It also includes the perception that the counter-sexual essences that combine as the "primordial cells" of complex forms, by means of whose functions corresponding counter-sexual essences of ever-lessening spacial and timal disparities become combined between and around them as spherular moulds, are *per se* the living soul, the counter-east of the bodily form which the spherular ova of each constitute. If, as assumed, the four strata of space that make up our world of forms, each of which repeats within itself — *in its interforms* — the same strata, with *their* representative interforms, all of which are developed in the same order up to the typal complexity of each, are alike aggregated of the empyreal grade of comminution, which is the most motile possible to our world's stratial position within the earth-sphere and the latter's position within the solar sphere, we perceive that the prime elements of its prime stratum were combinations of those centring toward, and those radiating from, the sun at its altitude within the sun's atmosphere.

The limit to which these combined counter-tending essences were adapted to ascend from the centre of terrestrial gravity, was, is, and ever must be, the periphery of the earth's atmosphere, above which they must of

necessity become sufficiently condensed to resist the ingress of external solar elements.

This, because, when from over-expansion and lack of fulera the nuclei of the spherules can no longer rotate, their position is maintained by the counter-pressure of the elements above and below them.

In accordance with this limital range of expansive elasticity, which conditions the formation of every needed in easement between its different grades of comminuted substance, we assume that the elevation of water from the bowels of the earth — through its mountains above the aerial elements, which, when satiated by absorbing the essences of higher strata, is returned thereto through the aerial stratum — is prototypal of the elevation of the deeper abdominal fluids of its higher animal organisms through the thoracic duct above the lungs, and its return to the alimentary system through the aero-sanguiferous vessels in combination with like super-aerial essences assimilated through the cutaneous air-cells and lymphatic pores. It is through these afferent vessels that the essences of ammonia and meteoric water, in a more motile or condensive state, are received into the organism in exchange for aerial essences, in a less motile or over-expanded state, elevated thereto through the systemic arteries and efferent lymphatics; the counter-equivalence of centrifugal force being the aerial and super-aerial essences plus condensed within the bronchial tubes and their tubelets in the walls of the blood-vessels. That is, the decreasing condensability of the super-aerial fluids injected into the middle layer of the systemic veins counterpoises the decreasing expansibility of the aerial fluids within the middle layer of the systemic arteries; while the increas-

ing expansibility of the aerial fluids injected into the middle layer of the pulmonary arteries (falsely termed veins) counterpoises the increasing condensability of the super-aerial fluids within the pulmonary veins (falsely termed arteries).

15. This is the ground of our assumption that the spacial boundaries of the systems of circulation that make up the vascularity of the human organism, within which the dynamic agents that are *per se* its Living Soul "live and move, and have their being," are intertypes of the spacial boundaries of the strata of different compounds that make up the stratification, or world of living forms, that are *per se* its Living Soul,—the Life of the lives that subsist within it.

If life be ceaseless progress in structural and functional complexity, then the soul of our world, like the souls that constitute it, must become, as we assume theirs must be, *re-embodied* within consecutively more motile and more highly comminuted stratifications of substance; its nuclear organism, like theirs, becoming organically defunct, and basic to the ascension of its atmospheric or essential organism. The fact that air, whose empyreal essences become our breath of life, is developed between the earth's surface-water and its atmospheric counterpart,—meteoric water,—whose elements ascend and descend by the absorption and expulsion of their empyreal essences, proves conclusively that the elements of air are combinations of the counter-tending empyreal germs fruital to the oxygenic and nitrogenic spherules below and above the aerial stratum.

This theoretic evidence that the empyreal essences fruital to lower and higher strata are the bases and

super-bases of like intermediate elements, is corroborated by the fact that air exists in surface-water in an embryonic state, and that it becomes developed, and ascends into the atmosphere as such, by the ingress of heat, and that it exists in a like, but more spacial, state in meteoric water, whence it descends as air by the egress of heat; which counter-tending empyreal germs combine as the essentially dynamic organisms or soul-powers of the aerial elements they become, when embodied by like essences condensed as their ova. It is also corroborated by the fact that the soul-powers of air become those of an air-breathing animal within the bronchial system, and its repetitions as the middle coat of the blood-vessels, whence the air-breathing entities of the blood — its red corpuscles — draw their breath of life; the sanguiferous system as a whole being developed between the efferent and afferent lymphatics, and their attendant nerves above the alimentary canal, — the organism's earthy stratum.

These facts are the bases of our assumption, that in like manner as the entities within corresponding strata of the outer world within which the organism is fetally gestated become incipient on the ovum plane, thence progress through the pupal, amphibian, or uterine transformations, thence through the infantile and mature stages of their specific embodiments, on to somatic outbirth into a more refined stratification of the earth's atmosphere (a higher world), so the entities of the different strata of the organism become incipient as its "repairs," thence outgrow, through like changes, on to outbirth into a higher stratification of the organism's atmosphere, — a more refined plane of sensible expression and sense-perception within the subjective uni-

verse of the self-conscious Ego ; the “repairs and waste” being the aggregation and hatching of the ova-embodiments of the empyreal elements involved. The four earlier strata of our world—the earthy, the aqueous, the aqueo-vaporous, and super-aerial—are respectively characterized by the predominance of the four essential elements,—carbon, oxygen, nitrogen, and hydrogen,—in more and less immature conditions, and less and more super-mature conditions; the intermediate elements, oxygen and nitrogen, being in a mature condition as the bases and super-bases of its interposed aerial or later stratum; the elemental germs of the lower and higher, or parental, strata, that are continuously ascending and descending through it, being in various embryonic conditions.

In accordance with the principle of outgrowth through the repetition of each preceding matricee of gestation within the form it gestates, we assume, that, inasmuch as the earth-sphere is the third stratification of solar gravity above the sun’s surface, it consists of three atmospheric stratifications, and three nuclear stratifications of corresponding but counter-spacially conditioned elements. Hence we assume that each atmospheric spherule consists of a central nucleus or sunule, and three super-nuclei, the individual rotivities of which increase in the ratio of its increase in distance from the earth’s surface; their constituent nuclei repeating the rotations of the sun and its three lower primaries, in accordance with their respective spacial conditions. Now, taking it as granted that the rotations of the central and super-central nuclei of the earth’s atmospheric or free elemental spherules are as much more frequent than those of their prototypes—

the sun and its super-suns Mereury, Venus, and Earth—as their quantities and altitudes are less; and that the rotations of the eentral and super-eentral nuclei of the empyreal spherules that atmosphere the elemental spherules—*their intertypes*—are proportional to their still lesser quantities and altitudes, we *can* and *do perceive ideally* that the super-nuclei of the empyreal spherules of our stratification, to whieh our sense of sight is responsive in virtue of being aggregations thereof, *reflect* the heat and light of their eentral nuclei, or sunules, in like manner as the planets Mereury, Venus, and Earth, reflect the heat and light of their sun.

These orbs express the assoeiated eentrifugal elasticity of their eonstituent spherules staticised by plus eondensation, counterpoised by the assoeiated centripetal elasticity of their atmospheric spherules atomically free, or plus expanded.

If the axial veloeity of the elemental nuclei of our world's illuminable atnosphere, whieh is assumed to be a eombination of the projectile force of the earth's elements and the downward pressure of superjaeent elements, is intermediate between the axial velocity of the earth and the axial veloeity of empyreal nuclei, then the time during whieh elemental spherules eirculate from the super-base of our stratification to the earth, and *vice versa*, is intermediate between the time during whieh empyreal spherules eirculate between the same boundaries under corresponding counter-pressure and the time during whieh the earth-sphere completes one circulation between its aphelion and perihelion boundaries,—assumed to be prototypal of the anti-sunward and sunward hemispheres of the strata, included within

the boundaries of our stratification, in like manner as the stratifications of solar gravity, to which Mercury and Venus are nuclear, are included within that to which earth is nuclear. The earth-sphere's *intra-solar* apsidial revolutions are effected by the counter-pressure of the sun's direct and reflex rays. As the latter rays are coincident with the influx of *extra-solar* rays, whose injectile force, when reflected from the sun, becomes additional or nutrient to the projectile force of its direct rays, it is readily perceived that the vital fire involved in the progressive development of the entire system is continuously maintained by the forced inspiration of counter-spacial and counter-tending empyreal essences from above and below its medium altitude. In like manner, the sentient vitality of our organisms is progressively maintained by the essences projected from surrounding objects, which, when subjected as sensations, add to the projectile force of our agents of sense-perception within the efferent nerves of special sense.

16. In reviewing these evidences of the transmission of properties through the essences of pre-existent forms, which culminate as the progressively more complex faculties of man, we accept as self-evident facts that the substance of nature's forms of force, or "bodies," is intrinsically alive, and inherently self-formative; and that the infinity of these attributes is its self-conditioned existence as the content of all space and the measure of all time in its endless inter-repetitions within consecutively lesser areas of space in proportionally lesser periods of time. From what is actually known of the ovate form of spherical gravity and of the elasticity of gaseous fluids, we can conceive that the weight of substance in its primordial diffused condition within the

elliptical form of infinite space would so compress the inner portions, that their associated resistance would counterpoise the associated persistency of the outer portions, in the sense that the direction of their combined force in dynamic equilibrium would be intermediate; that is, around the intermediate centre of their common ovate form. This perception includes the perception that this prime movement of nature's substance around its foci of dynamic equilibrium,—not a dead point, but the centre of universal vitality,—which was (as now) effected by the alternate plus and minus condensation of quantitative equivalents within the minus and plus spacial hemispheres of its elliptical form during equal periods of time, was the inauguration of every pulse and pulslet in our organisms, each of which is known to be the result of like contractions and expansions of the circulating fluids involved.

Then we perceive that this universal substance in its prime transformation must have moved in strata, the velocity of which decreased in the ratio of increase in distance from this centre. In accordance with the known laws of nature, the inner and outer equivalents must have gradually attained the conditions now manifest as those of the substance of the earth and its atmosphere.

Licensed by the fact that all animate forms become incipient as dual-layered membranes between the yolk and white (the nucleus and atmosphere of their ova of evolution), we assume that all the interspheres of universal formation have become incipient, as dual-layered membranes, between the prime nucleus and prime atmosphere at the altitudes of equilibrium between their counter-forcitiveness, which process has been continu-

ously repeated and inter-repeated within all intermediate spheres; the lower layer of each incipient sphere, like that of the "germinal membrane" of animal forms, being introverted as the nucleus or objective department, and the upper layer extroverted as the atmospheric department, during their embryonic state.

CHAPTER III.

1. IF substance, space, and time, as force, form, and motion, are equally extended within and as the sphere of nature, then substance, as the content of the never-changing counterpoints of space during ever-changing counterpoints of time, is the soul, or organic essence of Infinite Being, *on the essential plane*; hence is the soul of every type of form *on the essential plane*, which, as the archetype of universal formation on the complex plane, is an everywhere and a forever present existence.

There can be no *past*, or *present*, or *future* to the intrinsic elasticity or vitality of essential substance, or to the static powers of the essential points of space that so mould and fulcrate its pulsations that it becomes the dynamic or timal qualitics *inherent in the substance of every form in nature*. The dynamic essences nutrient, thence fruital, to the earth's atmospheric elements, are those of the primordial atmosphere or over-soul of nature in process of descent toward their focal counterparts condensed as the prime nucleus of formation. These self-living and life-sustaining essences are continuously becoming forced into the earth to its centremost, and condensed as the ova of elements indigenous to different atmospheric strata; which aggregating ova continuously substitute the spacial condition of those

that are continuously being outborn therefrom as atmospheric elements. During their aggregation on the nuclear or ovum plane, their elasticity is convergent; but, when impregnated or fertilized by like essences converging from higher altitudes, their elasticity becomes divergent; thence they ascend as elemental spherules to corresponding altitude on the mature or atmospheric plane.

This is effected by their inherited ability to centripetate and centrifugate quantitative equivalents of substance on the ovum and mature planes of development. That is, each spherule within the earth's atmosphere is an intertype of the solar sphere within which the earth-sphere is gestated as a spherical constituent; its degree of maturity being commensurate with its altitudinal status.

The static power of the earth's substance is the area of space within which it is condensed. Its dynamic power is the elastic tendencies it inherits from the consecutively higher and more spacial strata through which it has descended by condensation. These combined powers are the earth's centrifugal or projectile force. The condensive power of its equivalent of plus expanded atmospheric substance, combined with the superstatic force or inward pressure of substance expanded within consecutively more spacial strata, is its equivalent of centripetal force.

The earth-sphere's earlier-descended nutrient essences, atmosphered by those of later descension from consecutively higher altitudes, are *per se* its essentially dynamic organism, as also that of every interform which these organic essences vitalize; the earlier nutrient essences of each spherule being condensed as its nucleus, and

the later, expanded as its atmosphere ; the embodiment of each form being the sum of the spherular nuclei, or ova, of its constituent elements.

Hence, in becoming the dynamic or timal qualities of the earth-sphere's consecutively later interforms, the modes of motion by these vital essences must needs involve mechanical powers of increasing complexity. If so, the advent of forms whose functions represent the sentient qualities of these interforms must have been in the order these qualities increase in complexity. This is the ground of our assumption that the alimentary, the sanguiferous, and the cephalic systems in animal organisms, the bases of their appetites, their passionate emotions, and their reasoning faculties, are plus mature and minus complex in the order named.

The perception that the four anterior vertebræ of the spinal column are intercomplexed as one system, between which, and their outer and whilom atmospheric counterparts (the hemispheres of the brain), their respective ganglia or axes of thought are developed, is the basis of our assumption that these sensory ganglia, which are superimposed upon and outgrow from the anterior portion of the medulla oblongata, the ganglia of general sense, are the common offspring of the sanguiferous system and its counterpart within the atmosphere of the nuclear organism.

Hence we infer that the sanguiferous system, the seat of man's emotions, which are quickened by a perception of the virtues needed in his outer relations, is plus mature and minus complex in the degree the cephalic organs, the consensual functions of whose essential agents are *de facto* his reasonings, are minus mature and plus complex ; plus complexity being always

the latest outgrowth fruital to the nuclear and atmospheric equivalents of an organ or organism, or sphere of gravity. Not only are the organic powers of every organism counter-sexual *per se* in the sense that each more outer organ is functionally male compared with the functions of its simultaneously developing interior counterpart, but the functions of the nuclear organism as a whole are female compared with the functions of its equally organic atmosphere. The essential germs of the former being females, and those of the latter males, they combine as the pre-specific elements of its specific offspring on the embryonic plane.

The former's plus complexity, or more numerous motive tendencies, counterpart the plus maturity or greater motility of the latter. That is, the spacial and timal conditions of their essential fruitage represent respectively the spacial and timal conditions of the co-equivalents of essential substance that constitute the earth and its atmosphere, and also those of the nuclear and atmospheric counterparts of Infinite Being. As their common offspring and intermediate representatives, the generative functions of females are nuclear, and those of males atmospheric, compared with each other. Consequently and inevitably, male organisms, which become incipient as simple cells, or glands, or leaf-like limbs, according to the complexity of the structure, primarily outgrow from the organism of the maternal parent, in like manner as the planets outgrow from the sun, or moons outgrow from their respective primaries. The rays of secondary planets that tend toward the maternal orb are functionally male, or procreative; while those tending outward therefrom are functionally female, or recreative, in the sense that

their essential germs become atmosphered by like germs subsequently radiated from the sun,—their paternal orb. During the sunward revolution of the planet to which they are fruital, these priorly atmosphered germs atmosphere like germs radiating from the sun and from intervening planets ; thus on, down to the sun's surface, where the lessening spaciality necessary to their incipiency on a more complex plane ends, and whence they outgrow through the same cycle, by becoming atmosphered by like descending germs fruital to consecutively higher altitudes *from their embryonic plane*.

This clearly reveals the increasing complexity of the later planet-spheres, and the increasing ability of the earlier planet-spheres, to express their lesser complexity. Hence the psycho-physical powers of females are minus mature on a more interior and more complex plane, in the degree those of their respective males are plus mature on a more exterior and less complex plane. In virtue of these counterpart disparities, the germs representing their essential qualities are mutually complementary in every department of their being.

This mutual supply of each other's every need necessitates a co-equivalence of counterpart qualities, thereby abrogates the claims of superiority by the male sex of the human species, which equality is never questioned in brutedom. As progress in form is purely the result of the combination of more mobile but less complex germs with like germs correspondingly less mobile but more complex, the animal series must have been built up primarily from the lowest bi-sexual female to the full development of the two separate sexual organisms, just as we find them in the present. The relative increase in the size of males is commensurate with the

increasing complexity of the females of the species. In the lowest, or simple alimentive species, the puny helpless males, and also their common offspring, are the prey of the females. Miniature intertypes of the fossil representatives of these rudimental species, minute and monstrous, in the bowels of the earth, and their differentiated successors now existing in its shallow waters, are found in the different sections of the human intestines; and the process by which the uni-sexuals become self-impregnated, and so differentiated that the highest species in the series gives birth to individual, self-sustaining males, has been clearly traced.

This proof of the contemporary existence of these extremes between the size of the sexes in species on the alimentive plane of sentience, which necessitates a co-equivalence between the numerical value of the minute, and the quantitative value of the monstrous that subsist upon them, shows conclusively that living forms are evolved, and their vitality is maintained on purely mechanical principles; and that these extremes are provisional to the development of a series of species of ever-lessening disparity in general and sexual size, and of ever-increasing complexity of movement, consequent upon the innumerable differentiations in the mechanical powers of their original ancestors. As disparity in size between the males and females of succeeding species culminate in the human species, which reduces the physical powers of the female as much below par as those of the female of the lowest species are above it, woman's physical weakness is the inevitable result of progress in the refinement and complexity of the psycho-physical embodiments of the archetype of Infinite Being on the human plane. Hence man's injustice

to woman physically, and also the suppression of the free exercise of her less mature but more complex reasoning faculties, is the inevitable result of his more mature but less complex psycho-physical powers. Man, from his more outer and more mature plane of thought, perceives the almightyess of *physical force* as the means of gratifying his stronger appetites and passions. Woman, from her more inner and more complex plane of thought, perceives the almightyess of *love* as the means of gratifying her stronger emotions, — a desire to possess that which excites love. And each worships that which is strongest in the nature of each.

As the representative of the outermost essence of being, the essential fruitage of the male parent is plus mature compared to the innermost or basie essenees fruital to the female parent; and his psycho-physical organism, as the representative of a more outer or prior parental sphere, is plus mature *in the degree the time involved in its growth up to puberty is more extended than that of the female parent*. Hence the greater maturity of his faculties — his assumed superior wisdom — is the exact counter-equivalent of her more complex faculties, — her assumed superior intuition. Man, from his greater knowledge of outer effects, conceptively creates a Universal Ruler infinite in wisdom and physical power. Woman, from the more profound depths of her intuitional knowledge or innate reason, conceptively creates as a Ruling Principle an ideal of infinite love. Neither suspects that the embodiment of a perfect ruler or a perfect form of government consists in the combination of the male and female principles that overlie and underlie the generation of all form, organic and inor-

ganie. The aim of these principles is the same; the desire of both being the attainment of the highest good. The same is true of every faculty; the aim of each being the attainment of that which is necessary to its harmonious development, which is *per se* happiness,—the highest good attainable. When reason shall have attained puberty by the maturity of the species, love, its basis, will be the power behind the throne; then the question,—Which is the more essential, the more influential, and the more beneficent, love or wisdom, the female or male principle of generation, the God within or the God without?—will be forever settled by the perception that they are essentially and inseparably one.

2. Could we but perceive that the alternations of predominance in the downward and upward pressure of the earth-sphere's equivalents of nuclear and atmospheric substance are just the spacial and timal modifications necessary to bring their counter-conditioned essences into combination as the elements of its every compound and complex form, which, but for this counter-pressure in all its minutia of intensity and directiveness, could not become existent as such, or *be* what they *are*, or *do* what they *do*, we should perceive the necessity of this lack of general freedom, and should perceive, that, as regards the general welfare of the species, men and women have been, and now are, as free in the exercise of their respective functions as the normal development of the organs involved would permit.

Man is as much restricted by the religious element which predominates in woman's nature (not in man's systems of worship), and yields to it as unwillingly, as she does to the restrictions to which she is subjected by the predominance of his psycho-physical nature. The

male and female principles in humanity never have been, and never can become unbalanced, or antagonize beyond what a healthy degree of mutual restriction demands. As the representative of the God without, man's doings are necessarily more conspicuous than woman's, but not an iota more essential, more influential, or beneficent.

The reasoning faculties without the promptings of the emotional faculties are as unfitted to rule as are the emotions unrestricted by reason. The former include the extremes of evidence from unquestioned credulity to the rejection of the highest self-testimony. The latter include the extremes of emotion from the purest love to the direst hate. The acceptance of truth and the rejection of falsehood is the *soul* of science, and the *soul* of religion.

First principles are forever in harmony with general good, which is necessarily the offspring of local antagonisms. The proximate cause of all progress toward better human conditions is the outgrowth of our sphere of existence into higher altitudes within the solar sphere; that of the latter being effected by the intercombination of the counter-forcitive essences nutrient and fruital to the atmospheres and nuclei of its interspheres. Man's increasing freedom to exercise his psycho-physical functions is the increasing refinement and mobility of the elements surrounding him, whose more minutely comminuted essences combine within his organism with a corresponding increase of complexity in their conjugated movements. The local changes in our atmosphere, and their inevitable effect upon the human species in common with all other forms of life, all of which are caused by the various local compressions and repulsions consequent upon the positional

relations of its interspheres, do not in the least accelerate or retard the general outgrowth of the solar sphere: so the predominant activity of certain organs during one stage of their development, and their partial subordination during another stage, are indispensable steps in the general development of the human faculties.

3. The reversion of the physical power of the female principle of animal life, from the most predominant to a comparative subordination to that of the male principle, is the process by means of which more and more complicated faculties have become evolved through the comparative lessening size of female organisms and the gradual individuation and increasing size of male organisms.

The genesis of more and more complex organisms in the animal series consists in the combination of essential germs moulded within the consecutively more exterior and comparatively more spacial genitals of males with those moulded within the consecutively more interior and less spacial genitals of females; the process being intertypal of the combination of consecutively higher and more mobile atmospheric essences with consecutively lower and less mobile aqueo-earthly essences within the aqueo-earthly stratum. This general outgrowth through the subjection of consecutively more expanded essences, which, when correspondingly condensed, exceed their former expansibility plus their own diameters, is the cause, and at the same time the effect, of increase in complexity and mobility.

The self-impregnation of primal forms consists in the absorption of their male organs by the bi-sexual females whence they originate. The same principle is involved in the return to mother-earth of the elements

of defunct forms when their organic co-operations are no longer needed; the earth being the female parent, and its atmosphere the male parent, functionally regarded.

4. Taking it as granted that the motive tendencies of living forms are complexed (as regards the number of directions in which they are capacitated to move) in the degree the mechanico-vital forces are repeated therein by the subjection of the essences fruital to every preceding parental form as the outward bearings of their internal organs, and are matured in the degree these mechanico-vital forces are repeated as the inward bearings of their external appendages; thenee taking into account the myriads of spacial and timal changes that must have intervened between the lowest automatic motions up to the expression of the highest volitional activities,—we obtain an entirely new idea of human responsibility. As the culmination and unification thereof, all the forms and functions of its strata of subsistence are necessarily inter-repeated as the essential forms and functions of the human organism, all of which become externally repeated through its fruital essences.

In like manner as the earth-sphere is developed within its own especial sphere of gravity simultaneous with its associate planet-spheres, all being evolved within the sphere of solar gravity, so each spermatozoon of the human male is developed within its own especial eell; while several others are simultaneously developing within a more embraeing eell termed the “vesicle of evolution.”

The solar sphere, being a repetition of its parent sphere, is necessarily repeated within its every intersphere, and also within the culminate organism of each:

hence we find its nucleus — our sun and its parent sun — repeated as the liver and spleen, or prime centrifugal organs within the human organism.

The earth-sphere, being a more inner expression, is correspondingly more complex in its outer relations: hence its evolution is prototypal of that of its most complex interforms. Since the recent perception that each spermatozoon is constituted of essences fruital to a male and a female spermatozoon, and that it actually revolves around the centre of its own cell or spherule of gravity in a coiled condition, until matured as an embryo amphibian, from which it then emerges, thereby becoming outborn into a stratum of liquid elements through which it progresses by articulate motions, it is possible to conceive that the tendencies of the substance involved were inherited from consecutively more remote prototypal forms of moving, back to that of the earth-sphere *in embryo*. Not only so, but this conception is forced upon us as a mechanical necessity, inasmuch as the human form is the culmination of all less complex forms, in the sense that its forms of moving involve those of each less complex type, individualized. Hence, that in attaining a corresponding complexity, the earth-sphere must have expressed in its forms and motions *as a whole* those expressed by its consecutively more complex interforms *contemporary with their needed incipiency, and actual advent as more and more complicated mechanical powers.*

The conception also includes the various changes in structure and function necessary to express those now expressed by the animal world around us.

Beginning with the human organism on its pre-specific plane of birth, we recognize the “germinal spot” of

the ovum developed within an ovisac of the maternal ovary, whose prime uterine nutriment is moulded within its own *corpus luteum*, as the counterpart of the fertilized spermatozoon ovum developed within the paternal organism. During its ovum and uterine growth there is no choice but to assimilate the nutrient essences forced within its increasing form. And during its post-natal development there is little choice but to accept its needed solid and liquid elements, or nuclear food, from its immediate surroundings; its atmospheric nutriment being as truly forced into it through the pulmonary and cutaneous air-cells as were its pre-natal nutriment by the anastomoses of its afferent and efferent vessels with those of the maternal organism.

In so far as there is no choice in the germs of form whose intrinsic and inherited vitality and modes of moving become the essential proclivities of his organism, in so far man's actions are automatic, in the sense that they are *reflections* of corresponding motivities conveyed through his afferent nerves to their respective ganglia, whence the fluids involved become reflected through the efferent nerves. *Per contra*, in so far as the modes of motion by the agents of sensible expression are modified by the greater complexity of the ganglia of special sense in the human organism; that is, are transmitted and reflected through a greater number of afferent and efferent nerves to and from a corresponding number of axes of sensation and cognition than in less complex organisms, in so far man's actions are comparatively volitional. For example, the axes where the incidental rays of light become reflected in the human eye are so correlated by the convolutions of the conducting nerves throughout the entire retinal

membrane which enspheres its successive lenses, or strata of refraction, that not only an entire object, but an entire hemisphere of objects, is simultaneously cognized; whereas in what are termed the "compound eyes" of insects, in each of whose separate eyes minute beams of incidental light from an object are directly reflected, the cognition, like the sensation, is automatic, inasmuch as there is no choice but to accept the impress of such luminous rays as pass in direct lines to its separate foci of vision.

5. The great battle for life consists in obtaining basic or nuclear nutriment when the maternal supply ceases; the atmospheric or male germs being spontaneously supplied.

When the specific counter-sexual germs combined as man's essential organism *in embryo*—both of which are intrinsically atmospheric—have built up its nuclear counterpart as the mould of its motive powers, or rather as the vessels within which the essentially dynamic entities involved circulate on the ovum and uterine planes, the full development of the essentially dynamic organism necessitates the full development of the static or vascular organism on the post-natal or mature plane. As the forms that make up our world are all gestated within it as its constituent offspring,—their common pabula being their common fruitage, essential and complex,—those of earlier incipiency and of lesser complexity are necessarily ripened in the same order. Hence their exit from our plane of present existence as the prey of those of later incipiency and of greater complexity is simply a reciprocity of counterpart needs. The necessary aggressions of more complex animals upon those of lesser complexity result in the develop-

ment of organs of offence and of defense at points of needed persistenee and resistance on their respective organisms.

Organs of defence evidently became incipient in male forms during the physical reign of female forms. This accounts for their greater maturity in male forms. As the introversion of atmospheric germs within the decreasing spaciality of female forms, thence their enspherenee by atmospheric germs from eonseutively higher altitudes, is the proeess by whieh male forms become gradually increased in size, and ultimately individuated as distinct organisms in the animal serics in the present, it was necessarily the process by which the earth and its atmosphere became gradually *distinct*, and capaeitated to generate more and more complex organisms. Hence our assumption that the comparative decrease in the size of the female and the increase in the size of the male of each species, in the order of their increase in complexity, has been in consequence of the continuous increase in density of the nuclear equivalent of the earth-sphere and a corresponding increase in the rarity of its atmospheric equivalent. In proof of this, we not only find the aeme of disparity in the size of the sexes in the human species; but we find the extreme of disparity in the condensation of their fruital esscnees as regards *internality* and *externality*.

If, as assumed, the emotional or intuitional faculties of man are intermediate between, hence a compound of, the sensitive and the instinctive faeuilities of all preceding species,—all of whieh are *basic* to his reasoning faeuilities,—then, by parity of reasoning, the reasoning faeuilities are super-basically fruital to faeuilities corre-

sponding with the sensitive, the instinctive, and the emotional, or intuitional faculties on planes consecutively more mature or motile.

This presupposes the existence of beings endowed with like faculties on these consecutively higher planes, hence that their essential germs become inborn as corresponding faculties within animal forms on our plane, which grow up to maturity by the assimilation of like but consecutively later-developed germs indigenous as such to still higher altitudes; the faculties of each animal being in accordance with its specific status of complexity, and degree of development.

Taking it as granted that the principles or laws of causation, as manifest in the phenomena of nature, are *per se* the elastic potency of essential substance under the modifications of space, which, as vital qualities or functions, are necessarily unceaseable, then the generative functions of parents and offspring are eternally efficient. That is, the centripetation of their essential germs by all preceding forms, as the constituent germs of their successors on their respective planes of incipiency, as the correlatives of the ascent of their essential organisms to consecutively more mature planes, within more and more spacial strata, is necessarily without beginning or ending. As the ascent of the essential organisms of less complex forms in the order of their earlier advent preceded the ascent of those of more complex forms, so the descent of the fruital essences of the former preceded the descent of those fruital to the latter.

6. When we take into account that the objective universe is the embodiment of the ideals of its infinitude of individual objects, and that the emanations from

these objects are *their* thought-germs in the sense that their different modes of moving procreate the sensations of sound, light, odor, taste, and tangibility within the human organism, when assimilated by the organs of sense to which they are respectively nutrient, we perceive that the human organism is constituted of thought-germs, the sum of which is the archetype of the universe on the plane of human sense-perception.

The sum of its constituent thought-germs — all there is of its growth or embodiment — is, therefore, an inter-type of the objective universe within itself. Hence man's thoughts become sensibly expressed through the modes of moving by his fruital or *outer*-repeated thought-germs, which are cognized by his brother-man through sense-perception.

As the thought-germs — or sensibly-expressed qualities of objects which by cognition become man's agents of sense-perception, the sum of whose consensual modes of moving are, *per se*, the functions of his sensitive, his instinctive, his emotional or intuitional, and his reasoning faculties — are all there is of nutrition, they are all there is of his organism. If so, their reciprocal *impressions* are all there is of his conscious knowledge, either of inner needs or of outer supplies: hence his life is the sum of their reciprocity of needs, just as the life of our world consists in the reciprocal interchanges of essential substance between its elements of form.

These elements, as such, are essentially harmonious, all antagonisms being between the forms to which they become constitutively subjective.

If progress in harmony between the intuitional and reasoning faculties of man be in the ratio the thought-germs fruital to the representatives of his commensal

forms on consecutively higher and more mature planes of, to us, future life, approach the essential plane of complexity in their movements, in virtue of their increase in subtlety, and freedom to move, then their lessening spacial disparity as agents of sensible expression and as agents of sense-perception will result in a like lessening of the present disparity in size of the sexes that represent them functionally. That is, these alternate extremes in physical disparity between the counter-matrices of the specific structures in the animal series will approach intermediacy in the ratio the needs underlying these conditions,—the development of the various mechanical appliances (actual tools), offensive and defensive, prehensile and locomotive, assimilative and reproductive, all that is necessary to the incipiency and maintenance of life in form,—shall become *supplied* and *applied* to consecutively higher uses. This progress in general good, which is unaccomplishable by any other process, completely overshadows the parental antagonisms or correlative evils it counterpoises. More and more complex harmonies result from the toning down or increasing diffusion of more and more complex inharmonies. An absolute equilibrium between the vibrations of the essential representatives of universal formation would be the suspension of every vital force. There would be no sensible expression, no sense-perception, no individuations of complex forms of force, through an exchange of their fruital essences,—no any thing. Need to excrete ripened or over-expanded essences in exchange for like essences correspondingly condensable is at once the mission and life of every organ and organism in nature within which all are commensally gestated.

The atmospheric fruitage of nuclear forms is the basic food of like forms on the *post-mortem* plane; the latter's nuclear fruitage being the super-basic food of the former. All battlings between complex forms are on the nuclear plane for the attainment of nuclear or basic nutriment. But all these battlings—including man's murderous onslaughts upon the weaker of his own sex, ending either in their extinction or subjugation, together with his intolerable cruelties to woman, which have induced those most deficient in physical strength and psychical ingenuity to destroy their female offspring—have steadily resulted in the "survival of the fittest." To the query, Who is responsible for the injustice dealt out to the laboring masses of men and women in the present, we reply Themselves.

The world's producers, the fruits of whose labor supply the needs of the entire human family, are as much the tools of their rulers, whether chosen or tolerated, as are the vast armies of stalwart men assigned to do military duty,—the butchering of each other at the bidding of said rulers.

The only salvation from present evil conditions is the increasing wisdom resulting therefrom. The coming savior is of necessity an equalization of the counter-excesses involved,—the excess of wealth and the excess of poverty. This savior will assuredly, though gradually, exterminate the evil effects of both. Better emotions are the bases of better reasonings. Better laws and better practices can only result from a better religion.

The laws of every nation are necessarily based upon the religious sentiments of the people. Laws are out-

growths from the religious sentiments: hence the inseparability of State and Church otherwise than by a revolution in these sentiments. The punishment and execution of criminals are direct results of religious creeds, not of the unprejudiced emotions of professed religionists. The world is rapidly outgrowing these barbarisms, and will not be deterred by the fear of being heterodox.

With a religion that repudiates legalized murder and legalized injustice, and every phase of punishment except reformatory restraint, illegal murders and illegal injustice, with their attendant evil influencees, would as surely cease as that darkness flees before the light of day. The universal perception of the necessity of such a religion is self-evidence of its coming existence. The emotional nature of humanity has never been as profoundly moved as in the present; while the reasoning powers were never so outwardly active. A universal recognition of the essential co-operation and co-equal forceitiveness of these inseparable female and male faculties of human consciousness is sure to occur, and will as surely be followed by a harmonious unity in their expressions as that ingrowth and outgrowth are the unity of action between the counterpart necessities of existence,—needing to be, and being needed. These reciprocal needs of substance as essence and as form are the bases and super-bases of universal existence. The ability of humans to better their conditions is the measure of the responsibility of each.

Governmental changes are as much in accordance with natural laws—the motive tendencies of the substance involved—as are physical changes. Just as the equilibrium between the north-western and south-west-

ern trade-winds, on their equatorial line of meeting, becomes temporarily destroyed by the passage of the earth across the equinoctial, or by the greater rarefaction of the air in one hemisphere, from a casual change in its temperature (in which case, if the rarified current be from the southern hemisphere, it breaks over that in the northern, thence, circling around it, drags it onward, in the form of a terrific cyclone, in its own pre-equatorial direction, first north-west within the tropics, thence north, varying east); the directions being the reverse if the northern trade-wind gains the ascendancy: so, when the equipoise between demand and supply or reciprocal interchange in human jurisprudence is destroyed, a civil cyclone is an inevitable result. The principles of psycho-physical life, the soul of substance aggregated as form, are the harmonious correlations between the essential representatives of centripetal and centrifugal force. The combinations and inter-repeated combinations of these prime paternal and maternal motive forces are *per se* the mechanico-vital powers of nature, which essences move in every direction which the general good of the organic forms they become demand.

The general elastic tendencies of essential substance — the mechanico-vital powers, or principles of nature — are efficient and beneficent, however modified by local tendencies apparently antagonistic.

All man's injustice to woman, based upon his assumed superiority, his denial of the equal need of cultivating her mental powers, his denial of equal rights in all the relations of life, consequent upon her physical inability to obtain them, have had no effect whatever upon the co-equal efficiency and beneficence of the female facul-

ties of the species. On the contrary, they are in the present, as in the incomparably darker, crueler ages of the past, the exact degree of super-pressure necessary to the normal development of her intuitional faculties.

It must be borne in mind that the motive powers of the essential substance, that become the directive soul of the human organism, are *per se* its essential faculties; and that they become complexed by becoming so modified during the building-up of the organs through which their counter-tendencies co-operate, that they are just what the organism as a whole requires; there being no arbitrary mouldings exterior thereto, other than the approximate fitness of external essences, to combine with their essential fruitage.

All the faculties, including the reproductive, as we purpose to prove, are constituent to and co-operative in the organisms of both sexes; the male and female functions being respectively the predominance of centripetal elasticity in male germs or in the germinal substance of ensphering spheres, and the predominance of centrifugal elasticity in female germs or in the germinal substance of ensphered spheres, relatively regarded. That is, on the assumption that gravity is the tendency of substance toward equilibrium, regardless of direction, the momentum of which is the quantity involved multiplied into the strength or velocity of its elastic potency.

The operations of nature through which our world attained its present state of development are openly revealed in the present. The greater potency and ferocious aggression of the females in the lowest species in the animal series procreate the greater psycho-physical potency of the males in the highest species, the human.

And it is the tyrannical oppressions of man that procreate and compel the exercise of the greater moral powers of woman. The omniscience involved is the spacial and timal conditions involved in their development, which *become their inherent qualities*.

7. But the great desideratum in human judgment is the general aspect of things. This, as is well known, depends upon the stand-point from which their static and dynamic qualities, or forms and motions, are visualized. Although the conscious ego in the case of both is ubiquitous within its own subjective universe, in the sense of possessing the ability to idealize their positions and transpositions from every possible plane of mental observation, yet, owing to the relative counter-tendency of their essential constituents (man's being predominantly centripetal, and woman's predominantly centrifugal), his process of reasoning is predominantly *inductive*, — from effects to causes; while hers, although predominantly *deductive*, which includes the inductive, is from causes to effects, and *vice versa*, but with a corresponding degree of immaturity. In virtue of the greater complexity of woman's process of reasoning, she perceives the greater maturity of man's power to reason from effects to causes, and willingly accedes to its guardianship in matters involving external investigation. But, owing to his lesser power to reason from causes to effects, he cannot perceive fully, and will not recognize, the greater complexity of her process of reasoning. Not perceiving that the inductive process is innate in the deductive process, in the sense that the qualities inherited by the sensibly-expressed essences that constitute the representative images of external forms *by their different modes of moving* are still inherent in them,

when, by inbirth within the organs of special sense, they become the essential agents of sense-pereception, man cannot comprehend woman's intuitive perceptions otherwise than as a fortuitous process of jumping at conclusions. Much less does he perceive that humanity as a whole is progressing toward a plane of development when the entire *rationale* of things will become revealed to his outer consciousness through the innate perceptions of these sentient agents to the entire exclusion of his present tedious circumlocution of logical deductions. As progress in conceptive creation — all there is of conscious knowledge — is solely dependent upon a corresponding growth of the perceptive powers, which, in turn, is the result of a corresponding progress in the maturity and mobility of the essences of sensible expression that become both the bases and the superbases of the essential agents of sense-pereception, man's ability to better his conditions is limited to his voluntary selection of what his judgment deems best fitted to improve them. The attainment of better conditions being conditional, as well as his ability to select judiciously, his re-actions are *conditional* rather than *self-determined*. Not perceiving the necessity of limited conditions, man assumes that liberty to act unrestrainedly is all that is needed to enable him to become the actuality of his ideal of human perfection: hence he regards public opinion, the bases of the moral and civil laws by which his actions are restrained, as the great enemy of human progress.

The pressure of public opinion, upon whose elements individual opinion subsists, is as necessary to the normal development of the latter as is the pressure of the earth's atmosphere upon the individual atmospheres of

the forms that subsist upon *its* elements; the *rationale* of the pressure in the case of both being the *forcitive inbirth of their needed nutriment*. Local prejudices in favor of outgrown laws at one extreme, and of laws to whose status the human faculties in the aggregate have not yet attained at the other extreme, are equally inefficient as regards retarding or advancing the general development of the species. Even the denial by man of equal educational culture to woman is not permanently retardatory; for, as the female mind matures by ordinary attention and reflection, it is adapted to perceive the "reason of things" with incomparably lesser effort than the male mind.

8. The goddess of wisdom is born from the brain or outer sanctuary of Jupiter, the god of battles, man's deification of physical force; whereas love, deep-hidden in the heart of humanity, is the forever unseen mother god.

Jupiter, having been told by Heaven and Earth that the first child of his wife Metis would become his co-equal in strength and counsel, thought to destroy the child by swallowing the mother before her birth. Subsequently Minerva sprang from his brain. Metis, who excelled both gods and men in knowledge, typifies intuition, which the head-wisdom of man has virtually swallowed in claiming that wisdom is brain-born, having no maternity, in order to prevent the birth and equal counsellings of heart-wisdom, love. How true it is that history is continuously repeating itself! Human reason in its present cycle of development is just beginning to discern the intuition symbolized in the so-called myths of a past cycle.

Pandora, the mother of humanity, was all-gifted, yet

forbidden the gift of knowledge. Each soul is a Pandora, is all-gifted, possessing innately the germs of knowledge, power to know, "being endowed by Minerva with artiste knowledge." Experimental or acquired knowledge can never be bestowed by *gift*: each soul must acquire it for itself *at its own peril*, — must needs leave the paradises where "ignorance is bliss."

9. Plato, who professed to have received knowledge through oneness with this *inner god*, the soul of things, tells us that knowledge is not the result of experience, but only developed by it. "The soul recollects, recognizes, the ideas of things as it becomes acquainted with their copies, with which the world is filled." Seeing, as did many others belonging to his eye of development, the continual changes in the external of things, he sought the *real* in the soul of outer forms, until he learned to read the thoughts of the *outer god* through their symbols; thence bringing his soul, the all-gifted *inner god*, into *rappoart* with the outer god through these symbols, he perceived the hidden springs of life, — the *bases* of outer or conscious knowledge. His discovery that it is the all-gifted god within that recognizes the all-giving god without, through a recognition of the designs and uses of the things given as they become expressed in their symbolic forms and motions, with ever-varying changes as the progress of universal formation demands, is one of the grandest ever perceived by man.

The wherefore that this discovery has been so completely lost sight of by succeeding generations is because the mental faculties have been more exclusively directed toward the external or objective expressions of nature, — evidently a condition provisional to the

development and expression of still more refined and more complex emotions or intuitions in and through human nature.

Our cycle is distinguished by greater discoveries in physical science, and the artistic application of the mechanical powers of nature, rather than those pertaining to man's psycho-physical nature and the cultivation of the emotions or intuitions of soul-life. These unprecedented discoveries and their appliances are solely in response to the normal demands of the emotions, their expressed need of the better external conditions which result therefrom, just as more and more complex organs of offence and defence, of prehension and locomotion, result from a corresponding increase in complexity of the internal organs responsive thereto in the animal series.

10. When a man finds himself pitted against the most powerful oppressor hitherto met with, in preparing to strike a blow for personal freedom, he breathes deeper and deeper, holding his breath more and more in abeyance, until the veins in brain and limb are ready to burst with condensed air, suppressed strength: so, as the soul gradually outgrows the limits necessary to its lower planes of development, its inspirations become deeper and deeper, its conservation of force ever increasing in accordance with the growing strength and decreasing mobility of the super-pressure that protracts its resistance. Hence just as the suppression of deeply inspired air causes a corresponding increase in density of the aerial gases in every department of the sanguiferous systems, which is *per se* a corresponding increase in their expansive elasticity and outer efficiency, so the suppression of the periodically deeper inspi-

rations that nurture the emotional life of humanity increases their outer efficiency in response to the periodically greater demands upon its expansiveness, which condition the inbirth of still deeper and more complex emotions. The super-pressure causative to the earth's revolutions, by means of which its opposing meridian hemispheres are alternately brought into opposition to the sun, eight thousand miles nearer the focus of solar gravity, is the very agency needed to effect the condensation and explosion of the thermo-luminous spherules within its whilom anti-sunward hemisphere; which explosion conditions the inbirth of empyreal essences of ever-increasing expansibility and motility within its every form of life. In virtue of this, its noonal and perihelion altitudes continuously accord with the spacial and timal conditions of the higher and higher elements upon whose essences its ever-maturing forms subsist.

As this super-pressure is *de facto* the momenta of the very essences, that, *in procreating* the expansion necessary thereto, *become*, by inbirth within these forms, the counter-equivalents of resistant momenta needed by each, and which, through outgrowth therefrom, *become* their fruital essences, through whose modes of moving their essential qualities are sensibly expressed, we perceive that the essences of sensible expression and those of sense-perception are the same essential substance, and that their transformation from the outer to the inner plane, and *vice versa* through a never-ending series of progressive changes in form and function, is effected by their subjection to counter-spacial conditions during co-equal periods of time in continuous alternation: hence our assumption, that the essences of sensible ex-

pression, which supply all the needs of sense-perception *in becoming the consciousness of taste, smell, sight, sound, and feeling*, all there is of abstract knowledge, *are per se the all-giving God without and the all-gifted God within*. And as outgrowth and ingrowth are inseparably one as a correlation of co-equal counter-motive powers, we assume that the co-operation of these counter-parent forces of the All-Father and the All-Mother are forever in unison and forever indissoluble. Inasmuch as formation is the unification of counter-functional organs, the satiation of whose counter-necessities is effected by the alternate projection of the force of each across the line of equilibrium between them, as is exemplified in the alternate passage of the planets across the equator of the solar sphere, and also above and below the plane of their medium altitude from its centre, it is clear that alternation of predominance between correlated forces — which is always the result of pre-existing alternations of minus and plus pressure on either side, and above and below their mediate locality — is the *main-spring* both of direct and of reflex movement back *ad infinitum*.

11. Among the numerous processes by which the organisms of intestinal animals progress in complexity, is one of recent discovery termed "self-invagination." It consists of the retraction of the head within the stomach, thence the outgrowth of cephalic organs, dual or bi-functional, above the mouth. This is analogous to the absorption of the vital essences of the cotyledons, the prime male organs of plants, by the prime leaflets; and also of the absorption of the vital fluids, in organs no longer needed, by new ones that condition the existence of the animal within a stratum of more mobile

elements; such as the growth of the lungs and limbs of the frog at the expense of the gills and tail of the tadpole.

This reversion of the cephalic organs in primitive animals is clearly exemplified in the doubling over of the blood-vessels, whose fluids tend heartward in all the more complex animals; as also in the additional modes of limb-movements it conditions.

As the nervous tissues in less complex animals are replaced by osseous tissues in more complex animals, we regard this retraction of the primal head within the stomach of these low forms as evidence that the "collar-bone" of the latter replaces the "oral ring" of nerves by which the mouth of acephala, or headless animals, is opened and closed.

This interchangeability of functions by nervous and osseous tissues, as also this known absorption and re-growth of the cephalic appendages, is a clew to the development of the osseous skeleton of all animals from the nerve-fibres through which their nervo-vital fluids are primarily conducted.

The lungs of more complex animals, whose air-cells are simply the counter-folds of a double nervous membrane, are introversions of the tree-like, osseous gills of less complex animals, the development of which latter as lungs is simultaneous with their outer repetition as cranial hemispheres superimposed upon their own *arbor-vite*. It is the increasing mobility of these male organs in the ratio of their increased projection, whose vital essences become the bases of the correspondingly more complexed or convoluted internal organs, that conditions still greater projections and inflections on and up to the distinct individuation of male organisms.

Consequent upon the earth's ascension into strata of consecutively more comminuted essences, the surface essences of its interforms, whose modes of moving are repetitions of those of their essential constituents prior to their aggregation as sensibly-expressed forms, are correspondingly comminuted: hence their modes of moving as abstract sensations, when inborn within the organs of special sense as the consciousness of human sense-perception, will be correspondingly inter-complexed. This continuously increases the complexity of the synthetic arrangement of human ideas with a corresponding increase in freedom to project them into all the practicalities of life. As the essential substance of nature grows into every form of force as a functional necessity appertaining to nature's wholeness, we must lose sight of every other God save that which is expressed in the supplying of every need by a counter-need, than which there can be no higher manifestation of *Presence, Power, Love, and Wisdom.*

As regards the development of the organs of special sense,—the circulating media of which are the common offspring of the *outer* and the *inner* ego,—they are outgrowths of the general sentience of the organism, feeling, which includes the recognition of every mode of moving by the essences assimilated as nutriment, and radiated as fruital, from the extreme of latency (the ultimate zero of cold), to the extreme of activity (the acme of heat). That is, their motor and sensor nerves, the convolutions of which make up their respective ganglia, are not only outgrowths from that portion of the spinal cord nucleated within the four anterior vertebræ, but from the anterior portion of the *medulla oblongata*,—an outgrowth from the entire spinal cord,

whose ultimate fibres anastamoze with those of the sympathetic nerve,— the representative of the ventral eord of invertebrates,— within every eell of the organism. The octaves of vibration to whieh the media of these ganglia are responsive increase in number from the prime anterior posteriorly; so that the greatest number of vibrations in a given time beyond the rhythmic re-aetions of the gustative nerves, set in motion the olfaetary nerves; while the vibrations beyond the rhythmic re-action of the latter set in motion the optic nerves. And, as is well known, when the eye can no longer perceive intervals between the vibrations of a monoehord, its tension is such as set in motion the auditory nerves, and proereate the sensation of sound. In proof that the greatest degree of intensity recognizable by each more anterior or earlier sense is succeeded by the least degree recognizable by the next in this order, so on throughout the series, we find that liquid essences recognized as flavors are recognized as odors when aerialized by the degree of axial rotation neees-sary to render them volatile; and that aerial essences are rendered luminous by combination with essences projected from heated bodies, with the degree of force that renders their axial friction visible as light, whieh frictional luminosity ceases beyond a definite degree of mutual repellenee between these conjugated essenes or spherular nuelei in consequence of a still greater degree of axial velocity. That the axial veloeity of essenes set in motion by the vibrations of sonorous bodies are more rapid than those set in motion by the vibrations of luminous bodies is fully shown by the microphone. In the eondensation of inaudible sonorous vibrations the essences involved become luminous before they beeome

audible. Evidently the tension, or expansive elasticity, of the nerves of each less anterior or later developed sense, increases in a definite ratio: if so, the essences involved in the constitution of the nerves of each special sense are comminuted, and their motive tendencies complexed in the same ratio. In virtue of their contractions and expansions, the motive tendencies of the circulating media or perceptive agents become reversed; so that they are capacitated to cognize such essences, or essential representatives of external objects, as *sensibly express* the same modes of moving as their constituent essences expressed on the atmospheric plane prior to their condensation on the nuclear plane, or plane of *sense-perception*. If this be so, then different flavors are different octaves of vibratory movements by sapid essences; and different odors are different octaves of orbito-axial rotations by odorous essences; and different colors and different sounds are the different octaves of orbito-axial rotation by their representative essences, whose different ranges and intensities are, *per se*, luminosity and sonorosity. The wherefore of the rhythmic vibratility of the nerves of general and special sense, by means of which the essences representing the essential qualities of the objective universe become inducted as the essential qualities of our organisms, necessarily include the wherefore of the rhythmic vibratility of every vessel under their control. In the first place, we must bear in mind that the ganglia of special sense are simply convolutions of their motor and sensor nerves, the roots and branches of which inreach and outreach to the centre of every cell of the entire organism through the afferent and efferent nerves of general sense. The essential agents of general sense, which

repeat within the organism the modes of moving that represent the temperature and tangibility of the external forms of substance to which they are respectively fruital, and which are inborn through the afferent pores of its serous and mucous membranes in all their inflections and reflections, are the media of intercourse between the essential agents of special sense and like essences staticised as the vessels of its different systems of circulation. As these differently-conditioned systems are intypes of the differently-conditioned strata of forms upon whose fruital essences the organism subsists, their functions are necessarily correlated; that is, the strata and circulating media that make up our world are the whilom essential constituents of like strata of forms external to its spaciality, hence sustain the same relation to the organism when inborn as its vascular systems and their circulating media.

If the growth of each organism is effected by the repetition or addition of the areas of space included in its every provisional form *seriatim* within its spaciality, then the vibrations produced in the nerves of general and special sense by the motivities of the different species and different octaves of sense-impression are proportional; that is, they involve correlative points or periods of time: otherwise their combined movements could be neither consensual nor rhythmic as they most surely are under normal conditions. In our ideal of circulatory force, directly the condensing essences of external forms enter the afferent nerves, their prior spaciality is increased by the expansion of the sentient agents with which they combine as counter-nutritment.

On receiving the minus condensed or positive magnetism of the tissues surrounding them in exchange for

their own medially condensed magnetism, the conducting nerves instantly condense below a medium density. And, on receiving an equal quantity of plus condensed or negative magnetism from the sentient agents they thus condense, these nerves instantly expand above medioerity. The simultaneous condensation and expansion of these agents within the conducting nerves cause their propulsion in mediate directions.

If, as assumed, these nerves of sense are made up of the central nuclei of electro-magnetic spherules so condensed and extended that they are within the range of vision, while their atmospheric nuclei are so separated by comminution that they are beyond it, then the sensibly-expressed essenees of outer forms, which are always positive to the sentient agents they nourish, are forced through their atmospheres by external atmospheric pressure substitutively; that is, from each more outer link in the chain of non-sentient entities that make up the afferent nerves to the next in the order of their ingrowth, thus on down to their reversion as sentient or outgrowing links; all growth being by anastomosis.

That is, the ex-nutrient essenees of earlier links or of earlier individuated forms, whether regarded as fruital or refuse, become the essential constituents of later links or of later forms. Afferent or sense-receiving nerves and efferent or sense-expressing nerves, like the more and more complex vessels they build up as consecutively more complicated embodiments, are counter-sexual. The former, which are rooted in the non-sentient epidermis, conduct the essential fruitage of external forms in process of descent or ingrowth toward the embryonic plane of inner sentience; while the latter,

which are rooted in the sentient ganglia, conduct like essences as the former in process of outgrowth toward the paternal place. As organic *forms of force*, they are made up of miniature links, repetitions of themselves within themselves; the afferent half of each interlink, like that of each culminate link, being constituted of essential substance sensibly expressed as the essential qualities or elemental germs of external forms; while the efferent half of each is constituted of like but counter-spacially conditioned germs capacitated to sense or recognize the impressions resulting from the modes of moving by the former, which *symbolize* the essential qualities inherent in the substance of the forms to which they are respectively fruital. As regards their nuclear gestation, the afferent half is mouthed at the outlet of the efferent half; while the latter is mouthed at the outlet of the former.

As the form of each is built up of equal quantities of essential substance descending from above, and ascending from below, their medium altitude, combined as their constituent elements, there are equal quantities of elemental germs continuously descending and ascending through them, thereby becoming moulded as their nuclear and atmospheric fruitage. Hence, as regards their atmospheric gestation, the afferent half of each intermediate link assimilates the atmospheric or dynamic germs forced into it from the afferent half of a more outer link; while its efferent counterpart assimilates those forced into it from the efferent half of a more inner and less mobile link. This law is universal. Each form outgrows from its own focus of gravity, the two nuclear poles of each sphere being the equivalent of the four atmospheric poles; while the one nuclear centre is

the equivalent of the two atmospheric centres, which coact, as do their poles, in reverse directions bilaterally.

The alternate contractions and expansions by the non-sensitive nerves, which are such because mouthed or rooted in the non-sensitive epidermis, simply *propel* the essences forced into them. It is the modes of moving inherited and repeated by these essences that procreate corresponding reflex motions in the sensitive nerves, and superinduce the less frequent but relatively stronger contractions and expansions of the various vessels under their control,—those through which the representative compounds of earth, water, air, and ammonia, needed by the organism are conducted. The flow of the efferent fluids of all these vessels from their outlets at the terminal loop of each culminate link on the surface of the nuclear organism is continuous as their respective atmospheric fruitage up to the altitudinal limit of their expansibility, whence, when atmosphered by like but coalescing essences from higher altitudes,—those sensibly expressed as the essential qualities of external forms,—they descend, and become assimilated by the afficients of the nuclear organism.

The structural and functional relations between the efferent and afferent nerves of special sense are clearly illustrated in those of vision. Not only does a portion of the retinal nerves of each eye pass down to the ganglion on the opposite side, so that each eye is connected with both ganglia, and an equal portion from each ganglion pass up to the retina of the opposite eye, but through its nerve-fibres, which cross those of the medulla oblongata below it, each ganglion is connected with the opposite sides of the spinal cord and with the muscles whose nerves originate from it. These ganglia

are the central axes of vision ; and in like manner as fibres from the central axis of a tree or plant pass down and ramify its roots, and pass up and ramify its branches, thereby form its nervous skeleton, through whose inter-links its nervo-vital fluids circulate by anastomoses, by exchanging their counter-tending agents of force : so the agents of vision from these ganglia ramify their roots with the speed of thought, and also ramify every muscle responsive to the sense of sight out-tending therefrom, and through its atmosphere to the outermost range of vision. Thenee, when atmosphered by the luminous essences of external forms, they are inborn within these ganglia as the essential representatives of the form to whieh their atmospheres are fruital. As the basis of each subjective or mental image is fruital to the mind that conceives it, each object is to each mind that and that only which each is adapted to perceive.

This is equally true of every sense. To comprehend this, we must bear in mind that the organs of sense and their unitized embodiments, by whose funtions the substance of the essential agents of conscious knowledge in their organic capacity are fitted to exist in a more refined state of being, are all there is of man's objective organism. Progress in sentience necessitates more and more complex embodiments.

12. The lowest expression of life in form is an animal cell. This consists of lines of atoms centring toward and diverging from a common centre, every atom of which is the nucleus of a typal inter-cell, all of which outgrow within the walls of the prime cell, as do the planet spheres within the limits of solar gravity. The lowest expression of special sense is an animal possessed

of a definite mouth. This organ of taste is at the anterior or oldest portion of the organism: hence its plus maturity. In headless animals, such as possess neither a ventral nor dorsal cord nor foldings of the cutaneous membrane on the ventral or dorsal surface within which their nervo-vital functions are modified, the motor and sensor nerves, which originate in its deepening pores, come in contact first at the anterior extremity, where, by their anastomoses, they form what is termed the "oral ring." The contractions and relaxations of these motor and sensor nerves, which act and react rhythmically around the special mouth, are correlated with those of the motor and sensor nerves that close and open the cutaneous pores or general mouthlets. Laying aside all preconceived opinions to the contrary, we must bear in mind that the functions of all prime organs which necessarily originate as the surface-pores of the organism are centripetal, or male; those of their interior counterparts being centrifugal, or female.

The first organ of special sense, taste, in virtue of being an introversion of the prime afferent nerves of general sense, includes the rudiments or bases of each more complex organ, in the sense of being adapted to give expression to the various modes of moving involved in every other special sensation.

The functions of the tentacula around the special mouth in the least complex species, and which are repeated in miniature as cilia around all the mouthlets opening into the alimentary canal, are identical with those of the cilia around the cutaneous mouthlets. In perceiving that the special mouth is the culmination of the cutaneous and alimentary mouthlets, all of which are simultaneously developed, we also perceive that the

culminate organs of smell, of sight, and of hearing, are extroversions of the introverted afferent nerves through which the essences of air, of aqueous vapor, and of super-aerial gases, are inducted. As light is reflected by solids, and refracted by fluids, the basic essences of the sense of sight necessarily became existent contemporaneous with the solid bases and liquid super-bases of the sense of taste. But as the essences of aeriform and empyreform bodies are the procreative agents of visual sensations, their existence, which necessitated the prior existence of the aerial stratum, must have preceded the full development of the sense of sight: hence the development of the sensations of smell, which are procreated by the volatile essences of aeriform bodies, must have intervened between the incipiency and the completion of an organ adapted to perceive the essences radiating from luminous bodies. This accounts for the change of base by the nerves of sight, and their intimate relations with those of smell and those of hearing, as regards their ventricular position. When the attention is once directed to the assumption that sensibly-expressed forms are aggregations of the essence of substance brought together and focalized from every linear direction within their spherical limits, all alike being spherical on the ovum plane, it is readily seen that all are held together as such by their surrounding atmospheres. Just as the atmosphere of the earth is included within that of the sun, so the atmosphere of the human organism on the ovum plane is included within that of the maternal organism.

And just as the earth-sphere, from its incipiency as such, has outgrown on the ovum plane by assimilating the counter-tending germs within the solar sphere, each

of which is atmosphered by like germinal essences from the latter's ensphering sphere, thus on through more and more embracing spheres *ad infinitum*, so the human organism outgrows on the ovum plane, in virtue of the enspherence, atom per atom of its ovum of evolution by germinal essences fruital to the paternal organism, whose condensiveness, in virtue of being moulded within his *external* genitals, represent that of the essences of consecutively more embracing spheres, in like manner as the ovum germs fruital to the maternal organism represent the expansiveness of the germinal essences of consecutively more interior spheres in virtue of being moulded within her *internal* genitals.

Being an intertype thereof, the increasing expansiveness or weight of the centripetating or male germs from the periphery to the centre of the ovum is the exact complement of the decreasing expansiveness or buoyancy of the centrifugating or female germs, just as the increasing pressure of the earth's atmosphere, whieh is fifteen pounds per square inch upon its surface, is the exaet complement of the projectile elasticity of the earth's substance from its surface outward. In accepting the germinal essenees eoncentrating from the primordial atmosphere or over-soul of nature as the positive or male principle, whose elasticity becomes reversed as the negative or female principle within every sphere and spherule, when condensed as much below mediocrity as they were expanded above it at their altitudes of reversion centward, we perceive that earlier deseended essenees, when reversed, *need* the increasing condensiveness of the later descending essences at their every point of meeting within the earth-sphere to *substitute* their decreasing expansiveness;

that is, their ability to ascend, when combined as the organic essence or soul of their ova-embodiments, is purely in virtue of exchanging their less comminuted ova for those more comminuted, such as are adapted to coalesce within consecutively lesser areas of space; their subsequent expansibility being correspondingly increased in accordance with the lower and higher atmospheric altitudes at which the earlier and later essences or elemental ova are aggregated. This presupposes that the actions and re-actions of different elements represent the spacial and timal conditions of the altitudes at which they predominate.

These essentially-organized soul-germs aggregate in such structures as their ova or ex-nutritive essences are capaeitated to assume under the spacial and timal conditions involved, whether as the prime constituents of new species, or as the nutrient germs of existing species or of differentiating pre-existent species; all structural changes being effected by the continuous deposition of nutrient ova aggregated of essences from consecutively higher and lower altitudes as the substitutes of those which are continuously becoming outborn as ex-nutritive or ripened elemental spherules. As proof that these ex-constituent spherules, whose modes of moving represent the essential or abstract qualities of the forms to which they are respectively fruital, become the perceptive agents of the forms to whose organs of sense they are nutrient as tangible, sapid, odorous, luminous, and sonorous essences, we present the fact that these consecutively more complex organs of sense are represented in the earth's consecutively later surface-forms.

The different vascular systems of each organism are necessarily constituted of the elemental ova of the fluids

they conduct; the same being true of the nerves by which they are controlled: otherwise their contractions and expansions, or propulsive pulsations, could not be rhythmic. If so, the nerves of general sense are constituted of and conduct the essences of external forms that represent their tangibility and temperature; while the nerves of taste, of smell, of sight, and of hearing, are respectively constituted of and conduct the liquid, the aerial, the vaporous, and the super-aerial essences, that represent their special qualities, and if, as assumed, the number of their spacial reverersions is the numerical value of their movements in different directions, then the perceptions by the media of each earlier organ of special sense are basic to those by the media of each later organ; while those of each later organ are super-basic to the perceptions by the media of each earlier organ; the reverersions by those of hearing being as much more numerous than those of sight as the range of sound is less than the range of light. The cognition of concrete qualities is *per se* the rhythmic reverersions of these abstract perceptions.

13. In the matter of seeing, what we see is seen by the sentient image of the object *in embryo* nucleated within the optic nerve back of its super-nuclear counterpart delineated upon the retina. This retinal image, in virtue of being the essences upon which the modes of motion by those fruital to the object seen are impressed, is intermediate between its procreator on the more mature or outer plane and that which itself procreates on the less mature or inner plane: hence it is the *medium* through which the embryonic image below its plane of maturity perceives the corneal image, its prototype on the prototypal plane above it.

For example, the rays of light reflected from the sun delineate its image upon the periphery of the earth's atmosphere, thence become converged within it. Those entering convergently through the pupil of the eye, and which become minus converged in passing through the outer and less convex half of the crystalline lens, and plus converged in passing through the inner and more convex half, come to a focus, and cross each other, before reaching the retina, upon which they delineate an inverted image, the size of which, like the size of the atoms involved, is intermediate between that of the sentient image of the sun within the optic ganglia and its invisible image on the cornea.

All sentient rays are *out-tending*, because *reflections* of the *in-tending* rays that become the sentient images of external objects. These focalize and cross each other before entering the crystalline lens: hence each inner image sees the projection of its corneal image erect. The cornea sustains the same relation to the agents of vision on the intuition or embryonic plane below the retina that the periphery of the earth's atmosphere sustains to its agents of vision, humans and brutes, on the earth's surface, below the periphery of our world's photosphere,—the earth-sphere's intuition or embryonic plane. As the periphery of the solar atmosphere sustains the same relation to the thermo-luminous rays reflected from and representing the super-solar orbs, it is the medium through which their forms and motions, their static and dynamic qualities, are revealed to the sentient beings within the solar organism. The process by which their rays are converged upon and reflected from the sun, their central solar image, by reconvergence and re-reflection to and

from the sun's representative images within its planet-spheres, is prototypal of that by which the forms and motions of the solar orbs are revealed to man's outer consciousness through the intuitions of its visionary constituents,—*his* representatives on the embryonic plane of vision.

14. Conceptive creation, or the syntheses of the mind's ideals of the special or abstract qualities of things, is in virtue of the interblendings of the extreme octaves of motion by the media of special sense. Their movements are inherently consensual and contemporary under normal conditions. Under abnormal conditions their movements are inharmonious, insane. The fact that two waves of light or of sound of equal amplitude and intensity, when brought together from diametrically opposite directions, produce respectively darkness and silence, is the basis of our assumption that all the harmonies resulting from the combined motivities of the essences of sensible expression and sense-perception *are in virtue of the disparities between their relative spaciality and intensity*, which, in turn, depend upon their relative distances from the altitude of their *intermediate momentum*.

Each form, in revealing its own essential qualities through the motivities of its surface-essences, reveals so much of the essential qualities of Infinite Being as inheres in its substance. It is the essences radiated from nature's infinitude of forms individuated within man's nuclear organism as its interforms that perceive these representative images of Infinity. To study man necessitates the study of every thing that has contributed to his becoming what he is in the broadest sense of constituency. We must see *ideally* not only what he sees,

but what his Creator sees. This, for the reason, that, whatever he conceptively creates, that he is: otherwise he could not create it.

Were all man's senses closed, so that no expression of the peculiar forms of moving by the surface-essences of objects could become repeated within his nuclear organism, he could have no conception of externality. He would be, not only destitute of knowledge, but of mind, power to know. Were not every atom, eell, and tissue *in embryo* sentient in the degree necessary to subject its nutriment from its surroundings, and to effect the needed exchanges between its plus and minus mature organs during their aggregation, man's organism could not become what it does become, viz., a universe of self-developed forms, each the representative of a corresponding form within the outer universe.

Man's organism, no less during its fetality than in its post-natal development, is made up, not alone of solar heat and light extracted from their plus and minus mobile aggregations, but of the essences of every objective and non-objective form in nature. It is in virtue of *being what they perceive*, that the sentient entities that have their being within man's organism, as do their external representatives within nature's,— the sum of the former being man's sentience, as that of the latter is nature's sentience, are capacitated to *perceive what they are becoming*. We anticipate the query, Is not every thing subservient to nature? Not more truly than does nature subserve its every inter-constituent. Again: it may be asked, Is not the outer-essence surrounding nature, or the wholeness of formation within whose provisional embrace it lives and moves, and has its being, the CAUSE of nature's existence? Not more

truly than nature is the cause of *its* existence. Nature's existence is the contradistinct existence of that portion of the essence of form that has become aggregated as form. The self-elasticity or life of substance is in no iota changed by the aggregation of its essence in *forms* of force; no more so than is the vital force of six horses when associated as one team. It is upon the utter indestructibility and eternal efficiency of the self-elastic or vital force of substance that the endless duration, vitality, and substantiality of nature's constituents depend. They are simply what its essence has become, modified by the *ever-changing* points of time within the *never-changing* points of space. If nature's qualities are the sum of the qualities of its constituent forms (man's included), then man, if a microcosm, is conscious in the consciousness of his conscious entities. The assumption that general sensations culminate as special sensations, these, in turn, culminating as the specific sentience of an individual, is based upon the perception that the organs are rhythmically correlated as *forms of force*, each being receptive to and cognizant of definite but different octaves of vibration, hence act and react in unison.

Animate beings are sentient in the degree their essential types are complexed, which is necessarily in accordance with the status of the sphere to which they are constituent from the time of their advent up to the present, which, in turn, determines the degree the substance involved in their organisms is comminuted.

That which is received by the human organism through the organs of taste, of smell, and of touch, is a part of the actual substance of sapid, odorous, and tangible bodies; that received through the organs of hearing and seeing is the typal representatives of the

essences radiating from sonorous and luminous bodies; while that received through the organs of perception, the serous or outer pores of the brain, is the superbases of the liqueform and aeriform essences of taste and smell and the solid and semi-solid super-aeriform essences that procreate sound and sight, which, owing to their extreme minuteity and motility, are beyond the normal range of special sense. And yet they are the substantial pabula of man's conceptive creations that culminate as the atmosphere of his subjective universe. The stars are continuously radiating their luminous essences. This projectile force, the basis of their modes of motion, is transmitted substitutively to the earth's atmosphere, whose essences, when set in motion thereby, transmit them through its converging lines of essential substance to the earth. Those forced within the eye transmit to the essential agents of human vision the substance whose modes of motion represent their luminosity. This atmospheric pabulum brings them into actual *rapport* with the stars, in like manner as earthy, liquid, and aerial hydro-carbons are brought into *rapport* with the super-aerial stratum by combination with super-aerial hydro-carbons, in the sense that their essences are enabled thereby to ascend thereto; that is, when atomically atmosphered by essences moulded within like spacialities, they ascend to the altitude whence they descended by the forcing out of their atmospheres. If, as we are forced to admit, the genetic process of nature is a unity and an endless continuity, then the bases of man's agents of sense-perception have descended from the altitudes of every form through which they have priorly been moulded: hence, when atmosphered by essences of like spaciality, they are

adapted to project their sentient essences to the altitudes whence those of each organ descended by the forcing out of *their* respective atmospheres. These essential agents of human sentience are to the human organism what the sentience of humans is to the universal organism; viz., *its intuition or interior sentience expressed within its own atmosphere*. There is no mystery about this, if we but realize that what is revealed to the sense of sight as the size, shape, and color of objects, is simply the modes of moving by their surface-essences when set in motion by like essences primarily radiated from the sun or any other illumined body; it being assumed that the sun is as truly illumined as any object within the range of its radial force.

We see the glintings of the rapidly-rotating nuclei that make up the lower and denser portions of the radial lines out-tending from the solid surfaces of forms. The prism reveals their different tones, or degrees of velocity, which increase in the ratio of their increase in distance from the surface of the object as different colors, until their glintings are too rapid to be cognizable. The fact that these invisible rays may be rendered visible by focalization is ample proof that the more rapid axial rotations of the more distant nuclei are the correlative of the less rapid rotations of the less distant nuclei. If so, the super-visible nuclei above their visible surfaces sustain the same relations to the surface-nuclei whose vibrations substitutively procreate the images of the objects within the eye, as do the super-visible nuclei which substitutively become the super-bases of these images by transmission through the hemispheres of the brain.

Those who regard mental images as *non-substantial*,

and light as mere "modes of motion," should bear in mind that motion is the doing of substantial agents, and what they do is their momentum,—their quantity of substance multiplied into the velocity with which they move. Every architectural design is primarily constructed within the mind of the architect; and he can no more construct the archetype of a building without the presence within his mind of the representative images of the materials he designs to use than he can construct the building without them. These materials are seen, handled, shaped, and placed in position, piece by piece, until the building is completed. It is then seen and accepted as a model. If faulty, it is remodelled, often requiring more severe labor than the handling of the actual materials. That the archetype is constructed by the consensual co-operation of the ultimates of sense-perception from the ideal representatives of the essential or abstract qualities of external nature is evident from the fact that an insane architect, whose sentient agents do not co-operate consensually, is incapable of producing a harmonious archetype.

A form abnormally conditioned cannot become normally developed.

Regarded as subjective agents, the consensual designs of man's sentient constituents are as truly the expressions of their harmonious co-operation as the development of nature is an expression of the harmonious tendencies and co-operative unanimity of its essential constituents.

The relations between man's organism as a whole, and its individual constituents, are identical with those between nature and its individual constituents, man included. The embodiment of each typal form is an

aggregation of the germs fruital to the elements of its commensal compounds and complex forms, all of which are abstracted and concreted by its own organs of sense, and in accordance with its specific maturity and complexity, whatever its conditions. This is the creation of physical forms, objective and non-objective.

In like manner, the embodiment of each ideal or mental image is an aggregation of the elemental germs of the physical universe, the sum of which is its "representative image," the symbol of its essential qualities, all of which are abstracted and concreted, as these organs of sense and their circulating media, by their own inherited powers in accordance with the specific maturity and complexity of the organism they constitute. The creation of man's ideal universe — his universe of conceptive creations — is simply a cognition of the images of physical forms, all of which are subjected as his sentient agents directly they are miniatured within his mind.

CHAPTER IV.

1. THE fact that mind cannot conceive of a time when substance was not the content of space is of itself evidence that *substance, space, and time are inseparable, and alike without beginning or ending.*

Admitting the impossibility of their having been other than what they are *to be possible*, in order to account for their beginning to become what they are, there would be the same impossibility attending their beginning to become what they are *prior* to their beginning to become what they are.

What is impossible is necessarily inconceivable : *per contra*, what is possible is conceivable. Man's non-perception of truth is not that truths are ever otherwise than self-revealed ; but his *need to know* is continuously the measure of his *power to know*. In being the central soul and over-soul of his own universe as regardsceptive creation,—*the all in all of knowledge*,—his ideals of the infinitude of being are necessarily what he conceives their prototypes to be.

If, as is universally admitted, the principles of nature, or the tendencies of its substance,—which always accord with its conditions,—are unchangeable, there is needed no further proof that knowledge of natural phenomena, “*transcending experiment*,” is attainable.

And if, as claimed by Schelling and Hegel, the objective and subjective in human knowledge are absolutely identical,—and there can be no question with regard to the objectivity of the mind's conceptions of that which is objective to the senses, even of the conceptions of one mind transmitted to other minds by a *description* of the qualities of objects not otherwise sensed,—there is needed no further proof that mind and its subjective objects are *substantial*: otherwise mind could not perceive the substantial, and its ideas could not be the *images* of substantial objects.

Viewed in this light, "transeendentalism" corroborates "substantialism."

It is as impossible to obtain a conception of the formation of objects perceptible by the senses as it is of those recognized as their images within the mind, otherwise than as nucleations of essential substance. If, as assumed with regard to substance generally, the laws of mind are the motive tendencies of its substance, modified by its correlations with the forces of nature's substance, then knowledge is the image of the objective universe within the mind, only in so far as it includes a conception of the relations existing between the mind and the objects imaged within it; these relations being, *per se*, the unity and unison of the motive forces of the entire substance involved.

To feel is to know. Feeling is a recognition of counter-forcetiveness by a sentient organism. It is caused by its giving and receiving essential substance during direct or indirect contact with the object felt. This is *sensing*; while the substance received is the *sensation*, because it repeats within the recipient organism the essential motivitics of the object to which it is

fruitful, whether, as essence, it be sapid, odorous, luminous, sonorous, or tangible. The expression of these qualities of its substance is nature's mode of communicating with man, in whose substance the same qualities are inherently repeated physically, and inter-repeated metaphysically.

Every known truth is a key to the mysteries of nature, not alone as proof that the same principles are necessarily involved in analogous phenomena; but the *process* by which the simplest fact becomes known is a direct mode of communication between man and nature; nature's pantomimic language being the basis of every language expressed by man.

The process by which the fact that the solar orbs are organically correlated as one sphere of gravity has been demonstrated solely by observing their *forms of moving*, the self-testimony of acts performed. The fact that their motions are in unison is self-evidence that they are functionally related, not only internally as one sphere, but certain more extended movements; is self-evidence, that, as a whole, the solar sphere is correlated with external spheres.

The peculiar variations in the axial and orbital velocity of the planets during their transition from their aphelia to their perihelia, and their return to the former, has fully demonstrated the principle of gravitation, and the *why* and *wherefore* of the elliptical form of its forceitiveness, and has also demonstrated the fact that all variations in their motions are consequent upon variations in freedom to move individually or axially, showing conclusively that they act and react upon each other *through their elastic atmospheres*.

The fact that their axial velocity increases in the ratio of increase in distance from the sun, which is the exact ratio of decrease in their orbital velocity, is also self-evidence that the atmosphere of the sun decreases in density in the aggregate in the same ratio ex-centre-ward; and that progress in forms of moving, all there is known or knowable as progression or modification, is in the ratio of normal increase in freedom to *express* inherent tendencies.

2. All calculations with regard to their relative motions in the future,—the alternations of light and darkness, the changes of seasons, the ebb and flow of tides, their conjunctions and appositions, the occurrence of eclipses, the transit of planets across the sun's disc, and the relative position of solar and stellar orbs, so indispensable to the mariner,—are all based upon man's *ideals* of their prospective tendencies, obtained from records of their relative motions in the past. These are man's guaranty that their motive powers will be correspondingly efficient in the future. It is a grave mistake to regard ideals erroneous because erroneous conclusions are deduced therefrom. But for the *apparent motions* of the solar orbs in the present, which are identical with those upon which the Ptolemaic system of astronomy is based, no conception of their *real* motions could be obtained. All knowledge depends upon the truthfulness of the forms and motions of things, their being and doing, the image and impress of which are, *per se*, the qualities of their radiated essences when inborn within the mind's prospective range as sensations. They are ideal only in the sense of becoming additional to its subjective universe through cognition. Errors in sense-perception and reasoning

do not and can not affect the self-testimony or sensible expressions of nature.

As the common property of sentient beings, the ideals of things are to each mind what each conceives them to be, regardless of actual truth.

3. From what was revealed in their motions, Kepler discovered that all the planets are subject to one common LAW, which is, "that the squares of their periodie times are proportional to the cubes of their mean distances from the sun."

Newton's discovery that the force of gravity is inversely as the square of distance from the sun or earth, and that it diminishes in the same proportion as the square of distance increases, is consonant with and corroborates this law; while both are consonant with the assumption that the centrifugal or upward pressure of all nuclei, spherall and spherular (manifest by each as axial velocity), and their centripetal or downward pressure (manifest as orbital velocity), is proportional to their quantitative values modified by their distance from their proximate centre of gravity, which determines their freedom to move. If their orbital velocity decreases, and their axial velocity increases, in the ratio of the square of distance therefrom, then the substance of each increases in density and radiation proportionally, which decreases the density of their atmospheres correspondingly.

4. What a thing is as a wholeness; that it must be in its ultimate analysis: hence the tendencies manifest in the motions of the solar orbs are the tendencies of its ultimate atoms in their nucleations as a system of spheres. In accordance with this general law, the essences radiating from their surfaces represent or repeat

their forms of moving as one sphere of gravity up to the status of the orb to which they are fruitful. The assumption that the different degrees of orbital and axial velocity manifest by the solar orbs were inherent in their substance in their embryonic condition as one nucleus, all rotating *en masse*, is based upon the perception that the same tendencies are inherent in the substance of the sun in the present, and that, as components of one sphere, they rotate *en masse* in the present. Not only does the orbital velocity of each consecutively lower planet from Neptune to Mercury increase, and its axial velocity decrease, in the ratio of the decrease in the distance from the centre of the sphere, but the substance of the sun at each consequently lower altitude decreases in velocity around its centre, and increases in expansiveness or axial pressure in the ratio of decrease in distance therefrom.

It is in virtue of the culminate orbito-axial velocity of the sun's superficial substance, which is the sum of the velocities of its internal strata, that the radial force of the sun as the central nucleus of the sphere counterbalances the sum of the radial forces of the super-central nuclei or planets; or, otherwise expressed, the velocity of the sun's solid surface is the mean, because the combined rotary tendencies, orbital and axial, of the subjacent and superjacent substance of the entire system.

5. In consequence of its solidity in the aggregate, the substance of the sun at each consecutively lower stratum has a decreasing eastward velocity compared with its surface-substance; and, owing to its increasing freedom to move, the substance constituting the consecutively higher planets, not only expresses this decrease in eastward velocity, but, in the degree the planets overcome

their associative rotation with the sun's solid surface, in that degree does the expansiveness of their substance become manifest in their increased axial velocity.

For example, the orbital or associative velocity of Mercury at the distance of thirty-seven million miles from the sun is a hundred and twelve thousand miles per hour; while its axial or individual velocity is about six hundred miles per hour. The orbital velocity of Jupiter at the distance of four hundred and eighty-five million of miles from the sun is thirty thousand miles per hour, and its axial velocity about twenty-five thousand miles per hour. There is a like decrease in the orbital, and increase in the axial, velocity of the planets Venus, Earth, and Mars. The orbital velocity of Saturn is twenty-two thousand miles per hour; that of Uranus, fifteen thousand; and that of Neptune, only about four thousand. And doubtless, if not beyond its most motile limits, there is the same ratio of increase in their axial velocity as in their increase in distance from the sun. Taking it as granted that the sun's superficial velocity eastward counterbalances the comparative westward velocity of its substrata of substance atomically static, and that of its superstrata of revolving spheres, we perceive, that, *in being the mean* between the centrifugo-westward velocity of the former and the centripeto-westward velocity of the latter, it is the *means* by which the essences radiating from its surface, and those descending upon it, meet and combine, atom per atom, in perpendicular lines; and also perceive that these lines of combining essences are *per se* thermo-luminous spherules, which, in becoming focused above the sun's solid surface, are reflected as its photosphere.

And taking, it as granted that the lines of essential

substance radiating from the planets are focused above the sun's surface in the order of their increase in distance from it as consecutive strata, we are licensed to infer that their fruital essences are reflected therefrom, and concentrated within the atmosphere of the planet to which they are super-basically fruital; the bases of its heat and light being transmitted thereto substitutively from spherule to spherule and from sphere to sphere. And as the general direction of the sun's rays, projected through the consecutively higher strata of its atmosphere, to which its planet-spheres are respectively indigenous, is *from* the centre of solar gravity, and co-equally *toward* and *from* the centre of the sphere to which solar gravity is subjective, just as those projected from the planets are co-equally *toward* and *from* the sun, we are licensed to infer that the divergent and convergent elasticity of these spherules as a whole is respectively centrifugal and centripetal gravitation.

6. It is from what is revealed in the motions of the solar orbs in their descent into lower, and ascent into higher altitudes within the sphere of solar gravity, that we obtain our ideal of the elasticity of the planet-spheres, and infer therefrom, and from what is actually known of the elasticity of substance, that they are constituted of elastic spherules; and that, as culminations thereof, they reveal the forms and motions of their spherular constituents.

The fact that there are lines of essential substance diverging from and converging toward the surface of every form, those plus diverged on their angular projections being especially distinct, is readily demonstrated by viewing them through a prism. This is ample proof that it is the *re-active* force of these basic and super-

basic essences, when combined within common areas of space,—alike within as without complex forms,—that cause mutual repulsion, thereby conditioning the continuous alternations of motion toward and from the centre of every sphere and spherule of gravity, which, in turn, conditions the ingress of their nutrient essences and the egress of their ripened nuclear essences as atmospheric essences. If the solar sphere is atomically what it is as a whole, then its ultimate atoms, like its spherical nuclei, are ensphered by a co-equivalent of substance in an atmospheric state; so that no two spherular nuclei are ever in actual contact. And, by parity of reasoning, if the sun is the source of heat and light and of electricity and magnetism, then the nuclei of their spherules, like those of the elemental nuclei they atmosphere, are miniature repetitions, in form and function, of the nucleus and super-nuclei of solar gravity—the sun and its atmospheric suns—at the earth's altitude. The known facts that electricity ascends and descends from and toward the earth's surface in perpendicular lines through the agency of aqueous vapors, and also flows horizontally in the sun's wake, while magnetism flows poleward and equatorward from either side of the magnetic equator as the motive power of the earth's lower and upper air-currents, is evidence that the nuclei of empyreal spherules, and also those of elemental spherules, are, like their spherical prototypes, insulated and volatilized by corresponding currents, in virtue of which they rotate orbitally and axially in accordance with their distance from the earth's surface, as do the planets in accordance with their distance from the sun's surface.

It is also evident, from the changes of temperature

during their condensation as liquids and solids, and their volatilization as atmospheric gases, that the heat and cold evolved is due to the egress and ingress of the thermal essences of atmospheric electro-magnetic essences interstitial to their nuclei *between* their insulating magnetic fluids, which can never be forced out by any possible degree of compression.

While the degrees of heat caused by the rotation of the essences forced out decrease, from decrease in friction, in the ratio of their increase in freedom to move from *lack of friction*, the cold evolved, which is caused by the absorption of free heat, increases in the ratio the spherular nuclei involved cease to rotate and give off heat by friction from *lack of space*.

If, as assumed, electro-magnetic spherules in a fluid state are intertypes of the earth and its insulating currents of electricity and magnetism, then the direction of their currents correspond with the direction of those on the earth's surface, which of necessity correspond in form and function with the sun's insulating currents, because constituted of its direct and reflex rays combined with the earth's radial essences. The axial velocity of the latter is proportional to the earth's superficial velocity at their points of egress modified by the pressure of its atmosphere thereat.

This birth-force determines the altitude to which these essences ascend before they become counterpoised by the equal momentum of the sun's direct and reflex rays which are continually centering toward the earth from every pore of its atmospheric incasement. When combined at this definite altitude of equal temperature, these counter-tending essences are forced to move poleward in imitate directions from either side of the sun's

perpendicular light and dark rays, thence return equator-ward as surface-currents within the opposite meridian hemispheres, which become reversed by the earth's rotation during their passage through the polar hemispheres.

For reasons to be given more in detail further on, we recognize the ever-changing noonal point of this circle as the meridian pole of negative or luminous magnetism, and the midnight point as the meridian pole of positive or non-luminous magnetism,—lower and upper poles as regards solar gravity.

The arch of an armatured horseshoe magnet represents the upper, and the centre of the armature represents the lower pole; while the north and south poles of the magnet represent respectively the poles of the earth's hemispheres of boreal and austral magnetism.

As the earth's longitude from its meridian poles or acme of luminosity and non-luminosity equals its latitude from its poles of boreal and austral magnetism, its upper or poleward currents on the mid-day meridian become its lower or equatorward currents on its midnight meridian; while the upper or poleward currents on its midnight meridian become the lower or equatorward currents on its mid-day meridian.

As the time of the passage of these fluids from the plane of the circle described by the sun's perpendicular rays to the polar ellipses, and their return thereto, equals the time of one rotation of the earth on its axis, it is readily perceived that these meridian currents are in dynamie equilibrium; that is, they do not flow *around* the earth as upper and lower currents, but are reversed at these anti-meridian and anti-latitudinal points, hence are prototypes of the "breaks" at the poles and on the

centres of the arch and armature of the magnet, where *its* currents become reversed.

The diurnal advance of these meridian currents, which is *per se* the earth's orbital advance, is due and proportional to the earth's excess of longitudinal force compared with its latitudinal force. The expansive elasticity of the fluids forced into the earth at its magnetic poles, which become its equatorial rays, increases its equatorial diameter in the ratio its polar diameter is lessened.

If, as is self-evident, the combined axial and orbital momenta of the planets are proportional to their quantitative values, and mean distances from the sun, then the sum of their momenta is, as regards solar gravity, the correlative of the sun's axial and orbital momentum, which, by a co-equal necessity, is proportional to its quantitative value and its mean distance from its sun. Accepting this as a mechanical necessity, then the centrifugal force of their interstitial atmospheres as a whole is the correlative of an equivalent of atmospheric substance external thereto correspondingly centripetal. By bearing this in mind, we can conceive how the heat and light of the planet-spheres counterpart the heat and light of the sun, and how all are simultaneously nourished by the ingress of this superjacent substance through a reciprocal interchange of their positive and negative electro-magnetism. Although all forms are never otherwise than counterpoised between a needed supply of basic and super-basic nutriment, yet how like the increasing self-provision of animal forms is the recession of the solar orbs from their embryonic plane of subsistence in the ratio of their increasing self-motivity or axiality!

7. To obtain an ideal of the nutritive process by means of which the solar orbs maintain their static and dynamic relations, we must idealize a sphere of gravity that sustains the same relation to the solar sphere that the solar sphere does to the earth-sphere or to any one of its primary spheres. Whatever the comparative distance of the solar sphere from the nucleus of its sphere of subsistence during its axial revolution as a wholeness, its every primary is at its perihelion when on a line between this nucleus and the sun. And the wherefore that each planet moves with its maximum of orbital and its minimum of axial velocity at this point, is because of its minimum distance from the centre of the ensphering sphere of solar gravity, where the density of the radial lines of atoms increases its associative rotivity, and decreases its individual rotivity, thereby causing differences between spaces passed and the times of transition, hence differences between true and mean time. And, whatever the ellipticity of the sun's orbit as a revolving primary, it is always at that foci of the solar sphere nearest the nucleus or sun of the ensphering sphere: hence it is on a line between this nucleus and each of its primaries when they are at their respective aphelia, which is at once their highest altitude within the sphere of solar gravity, and also of that to which solar gravity is constitutently subjective.

And the wherefore that each planet moves with its minimum of orbital and its maximum of axial velocity at its aphelion, is because of the rarity of the lines of thermo-luminous spherules radiated proximately from the sun, and ante-proximately from the sun's sun, at this its extreme distance from both.

8. In regarding these and all other orbs as nuclei of

individual spheres,—each sphere being self-balanced, and contradistinctly co-operative, regardless of position, in virtue of the co-equal but counter-tending elasticity of its quantitative equivalents of nuclear and atmospheric substance,—we obtain a clew to the *how* and the *wherefore* that orbs constituent fetal descend into lower, and ascend into higher, altitudes within their respective spheres of subsistence.

Taking it as granted that the atmospheres of the planets consist of contradistinctly rotating stratifications, and that the time of the revolution of each around its respective planet is proportional to its mean distance therefrom, in accordance with the principle revealed in the revolution of the different stratifications of solar gravity to which the planet-spheres are respectively indigenous, then the times when their rays or lines of essential substance come in diametric contact with those descending from the periphery of the solar sphere, and ascending from the sun, *are proportional to their mean distance from the planet and from the sun respectively.*

The satiation of these contacting stratifications is the combination and conjugal motivities of their counter-tending essences.

This, because the radial atoms outflowing from each planet through and from the periphery of its atmosphere are the *fruitage* of the elements of these planet-spheres, which were priorly the radial lines of atoms outflowing from the sun, and like lines of atoms inflowing from space superjacent to the solar sphere *combined within their spaciality as their organic forms.* In perceiving this we perceive that it is not the so-called elements of form as wholenesses that are radiated from or absorbed

by incipient and growing forms as nutriment, but *their fruital essences, which, as ultimate types of form, are omnipresent in being the content of the ultimate points of space.* Hence, as types of form, the sun's outflowing essenees — the germs fruital to its elements — are the bases, and the inflowing types of form fruital to super-solar elements are the super-bases, of heat and light within the solar sphere.

In becoming combined as such at every point, — alike within as without its interspheres and their interforms, — they are co-equally efficient when latent as form, as when their peculiar orbito-axial revolutions express heat and light.

If, as assumed, there are co-equal quantities of substance in the aggregate at every altitude within every sphere, — the spaciality of which increases directly in the ratio of the square of increase in altitude from the centre, — these essenees are not the ultimate comminutions of substance as the content of infinite space. To be the content of its ultimate points, *substance must be comminuted and coalesced in such a manner as to correspond with the multiplication and coalition of the ultimate spacial points from and toward the centre of a sphere.* Hence *the lines of atoms radiating from the nucleus of a sphere, or from any form, increase in number by comminution in the ratio of the square of distance from its surface.*

9. The dispersion and focalization of rays of heat, light, and sound, clearly illustrate the comminution and coalition of the force involved, assumed to be the waning and increasing expansiveness of the essences involved consequent upon their increase and decrease in freedom to move atomically. The greater the quan-

tity within a given area, the greater the projectile force of the free surface atoms, and the more rapid their axial rotations,—heat force. As their number becomes squared in the ratio of numeric increase in distance from the radiant, luminous, or sonorous body, in that degree their centrifugal elasticity decreases from decrease in density. When such rays are converged, and focused within a like area of space as that whence they were dispersed, their force as heat, light, and sound, is fully restored. These phenomena, in illustrating the co-equality of direct and reflex force, clearly prove the equal distribution of heat and light within the solar sphere, in virtue of their co-equal convergence from the periphery of each planet's atmosphere, each of which is to its planet what the entire inter-solar atmosphere is to the sun, viz., an equivalent of substance counter-spacially conditioned.

The fact that the prime cell of a nascent organism during germination divides, first into two cells, thence into the square of two, and so on, is self-evidence that the prime germ is a cluster of nuclei arranged in accordance with the types of the forms to whose elements it is fruital; and that this process of self-division is the simultaneous growing of their nuclei and atmospheres in accordance with the increase of space from the centre of a sphere; and that the outgrowth of their atmospheres is the combination of essences fruital to counterpart elements tending toward each other from below and from above their medium altitude *between* these nuclei, each nucleus and its atmosphere being, in turn, reciprocally impregnated with each other's fruital essences, in like manner as the earth and its atmosphere are continuously exchanging the essences of their elements.

10. Looking at nature as a whole, we perceive no starting-point upon which to base a conception of the prime aggregation of substance in form; the limit of its extension as the content of infinite space being as unthinkable as its ultimate individuations. Yet, inasmuch as its essences do become so condensed and extended as to *begin* to become objective to *human sense*, thereby *begin to become substantial forms*, we are licensed to infer that the substance of universal formation pre-existed as the forms of the ultimate points of space it successively filled, each point being a contradistinct essential matrice, and its content a contradistinct essential type of form. This latter is corroborated by the self-evident fact that the points of space that make up the forms of male and female animals are the matrices within which their fruital essences are moulded, these same essences having been priorly moulded within the essential points or elements of the earth-sphere, the solar sphere, and of every preceding sphere: otherwise they could not have *become* the elements of the interforms of these consecutively more interior spheres, or *grown* up as the elements of *their* respective interforms. If this process of outgrowth be the outworkings of the intrinsic elasticity or vitality of substance qualified by its own absolute conditions as the content of all space formatively, and motorially the measure of all time, then the ultimates of substance, which now as ever constitute the elements of universal formation, must have been moulded by and conformed to the forms of the ultimate points of space through which they have been consecutively forced to move by virtue of their own centripetal and centrifugal elasticity. As the ultimate constituents of infinite spherieity, the form of

these points is of necessity modified by the increase of space from its centre, in consequence of which no two points can possess the same polarity, or be of the same shape. Hence each ultimate of substance is distinct in form and function from every other, yet, in virtue of its elasticity, it is adapted to become the form of every other, and also to return to every prior mode of moving.

11. In following out the idea of certain ancient philosophers, who assumed that the universe is an ovum in process of evolution, we must go back to the fact that it can evolve only that which is *involved*, not only as regards its substance, but the types of form which its substance becomes. In the evolution of animal forms the "primordial cell" was pre-existent as the ova of the elements of both the parent forms; those of the female being the innermost, and those of the male the outermost, or atmosphere of every elemental spherule which they became.

The male and female principles are distinct only in the sense that the female is always prior as form, having been male during nucleation, thence, when atomically static, becoming female or evolvent, hence the counter-equivalent in form and function of the nucleating essences that represent the male or involvent principle. During incubation, the empyreal essences centering within her ova from the mother-fowl are male in function; while those centering within their nether hemispheres are female in function. When the former are in excess, the mother reverses their functions by turning the ova as need demands; the excessive draught upon the male principle of her organism being the instinct that prompts her to reverse their position, and

preserve equilibrium. That this is alike necessary to the preservation of an equable temperature in her ova is but another proof of the correlations of force between mature and embryonic forms.

12. When we grasp the principles involved, and take into account that it is the inhalation of the substance of the aphelion or male hemisphere of the solar system within the spaciality of its perihelion or female hemisphere simultaneous with the exhalation of the substance of its perihelion hemisphere within the spaciality of the aphelion hemisphere, which so modifies their elasticity that the opposing hemispheres continuously substitute each other's spacial and timal conditions, thereby conditioning this respiratory process within their every intersphere down to the ultimate spherules of each, we can not only imagine that the universe as a whole is elliptical, egg-shaped, and that the essences of its aphelion and perihelion or male and female hemispheres are continuously exchanging their spacial and timal conditions, but we *are forced to recognize the universality of the process as an inevitable necessity.* That is, like that of the solar system, one-half of nature's substance is subjected to a less spacial hemisphere, and the other half to a more spacial hemisphere, during eo-equal periods of time; the former, or that below the plane of its axis of rotation, being female or plus expansive, and the latter, or that above it, being male or plus condensive, during said subjection. The exchange of essential substance between the opposing hemispheres of its spaciality, utterly immovable as space, is the means by which their entire contents exchange their spacial conditions. This culminates as the *revolution of the entire substance of the universe.* In virtue of this moulding process, the

nucleus of the sphere of universal formation, whose essential nuclei rotate associatively, is the counterpart, as a whole, of an exact quantitative equivalent of atmospheric nuclei which rotate contradistinct thereto; the content of every higher stratification being male, compared to that of every lower stratification.

13. The assumption that formation in its ultimate synthesis is solely between the ultimate comminutions possible to the substance of a sphere at the locality where they aggregate as such, and that they are combinable only when so conditioned parentally that the area of space priorly occupied by one atom, or one quantitative equivalent, is a multiple of that priorly occupied by the other, so that, when combined within their united areas, the plus condensed is atmosphered by the minus condensed (their combination being in effect the expansion by comminution of the nuclear to the outermost of their common sphere of motivity, and the condensation by coalition of the atmospheric equivalent to its centermost), is based upon the perception that the outgrowth of the earth-sphere, itself a nucleated cell, is an exponent of the outgrowth of its interforms, each alike being *in embryo* a nucleated cell.

14. Again: the assumption that the substance of the earth and that of its atmosphere are inherently combinable and reciprocally nutrient, *solely in virtue of their counter-spacial conditions*, is based upon the perception that the modes of moving by the counter-tending essences that combine as the substance of a form *become its inherent qualities*. If so, its progress in structure is consequent upon the continuous refinement and increasing complexity of the earth-sphere's nutrient essences during its outgrowth into higher altitudes of the solar

sphere, which is, *per se*, the structural and functional progress of its every interform, all of which are its inter-subsistent organs.

15. The correlative assumption that the intrinsic elasticity of primordial substance is absolutely perfect in and of itself, hence is non-progressive as the VITAL ESSENCE of form, is based upon the perception that it is from everlasting to everlasting, *just what the needs of the forms it becomes demand*. Nature's ability to condition the existence of its needed organs, like that of each organism, is necessarily commensurate and contemporary with the *need of its efficiency as a new organic form of force*. On the essential plane, every ultimate of form whose tendency is centerward is mated and satiated by the counter-force of a corresponding ultimate tending ex-centerward. These essential representatives of the male and female principles of generation supplement each other's being and doing in continuous alternation.

Not only are they inseparably conjoined as the elements of form, which are continuously correlated dynamically as center-tending and ex-center-tending atmospheric elements, and also statically correlated as the earth's counter-meridian and counter-polar hemispheres, which continuously substitute each other's spacial conditions, but the fruital essences of the two sexes of each species become inseparably conjoined as the elements of their common offspring.

16. The perception of the *rationale* of facts, like their discovery, is progressive. The public mind is no longer satisfied with the simple assertion of leading theorists, that the phenomena of nature are the result of certain "forces," — unembodied energies. Whether or not gen-

erally expressed, the opinion is becoming general, that whatever is done is done by something competent to do it. To produce substantial effects, the doer must be substantial; that is, it must be equally persistent and resistant, which necessitates substantial constituents susceptible to modification, hence intrinsically elastic. To assert that nature does this or that is as meaningless as it is unscientific, except in the sense of doing what it does by means of its substantial agents, just as a man works with his hands, walks with his nether limbs, and thinks with his brain, all of which, as he well knows, is effected through the agency of their substance. Not a cell in his organism is efficient otherwise than in the efficiency of its ultimate atoms.

And not an atom could be efficient, but for its intrinsic elasticity, and its subjection to external pressure from opposing directions, with alternating degrees of plus and minus force.

Man in all ages has had an impression that the forms and motions of its constituents are the organs and functions of nature, and that, in some undefinable way, nature is conscious in the consciousness of its conscious organisms. But so long as he regards things as being other than that which constitutes them what they are, and limits his range of thought by studying their relations from his nether stand-point, he denies their higher self-testimony by ignoring the range of *ideal vision* that embraces their more extended relations. Man can no more idealize above his mental stand-point than he can see above the angle of vision.

17. In the dim light of human childhood, a leading thinker conceptively created a God adequate in size and strength to sustain the earth upon his shoulder;

the world's supposed size being of necessity in keeping with that of its idealized supporter.

In after-ages other and still other leading thinkers presented to the public mind their ideals of a Mighty Being whose especial habitation is man's outer plane of conceptive creation. Some, in daring to study nature from the God-plane, earned thereby a martyr's crown.

In a riper age, Newton, perceiving the necessity of some power adequate to uphold the solar system, idealized *gravitation*. The restrictors of free thought have gradually become reconciled to this blasphemous ideal; more because of their inability to comprehend its ALMIGHTINESS, than from any proof they can produce of its being an agent of a higher power.

Man's modesty (?) in ascribing the creation of the universe to an omnipotent personality, who invariably follows the thinker's especial archetype, however incongruous its parts, consists in his non-perception that this ideal creator, and all he is assumed to create, are the thinker's own creation: hence his belligerent demands upon the public mind to accept as a standard for truth what *he* believes, detract materially from his claim either to modesty or to acuteness of perception. As each human, like every other form, is infinite in being constituent thereto, there is no one to whom either man or woman owes an apology for studying nature for themselves, or for presenting their ideals to the public.

No one can perceive the relative positions and motivies of another's conceptive creations. The leading hypotheses in the present popular theory, with regard to the development of the solar system, and inferentially

of all other systems, that the substance involved was priorly "diffused in space in a state of exceedingly minute division, the ultimate particles being held asunder by the repulsion of heat," is inferable from the fact that the super-basic nutriment of all terrestrial products is diffused through their common atmospheres in exceedingly minute particles, which are held together, as well as asunder, by the empyreal essences whose modes of motion express the various degrees of *latent* and *sensible heat* recognized as *cohesion* and *repulsion*.

The assumption that it existed in distinct strata is in accordance with the known stratial arrangement of the earth's substance,—solid, aqueous, and atmospheric,—and also that of the solar sphere as represented by the consecutive stratifications of solar gravity to which the planet-spheres are indigenous; far stronger proof than the rings of Saturn. But the assumption that these strata were the result of the "shrinking away from them by the interior mass, consequent upon cooling," and that the interior of ours, and of every other planet, was primarily "liquid fire," with but comparatively "thin crusts, cooled down to their present temperature since becoming rolled up into globes," is not only not corroborated by any investigable process of generation, but is the reverse of what is actually known regarding incipient formation. The nucleation of substance at and around a centre, thence outgrowth into cellhood, thence the repetition of its embryo cell-form within itself, on and on, as need demands, is the only process yet discovered.

If nature is the sum of all forms inseparably unitized, and forever inseparable from that which, in nourishing it, becomes nature, there can be but one nutrient essence,

and but one generative process. But the perception of this oneness of form with that which becomes form is comprehensible only as we perceive the homogeneity and modifiability of essential substance, thence perceive that formation is in virtue of the subjection of equal quantities to counter-spacial conditions during equal periods of time by continuous alternations of plus and minus super-pressure from opposite directions, whereby these equivalents, whose elasticities are rendered counter-tending, are brought into inseparable inter-coherence as form at the specific localities where their forms of moving are needed. The *need* of their efficiency within the areas of space in which they nucleate, priorly void of substance, *conditions* their becoming existent. In supplying the need that conditioned its existence as an organ of a more embracing organism, each inter-organism builds up its own organs from the essences fruital to its matrice. However deeply indebted the public mind may be to scientists for the facts they have more or less clearly demonstrated, at the same time disclosing more or less clearly the tendencies of the substance involved, the so-called "laws of nature," we are not, on that account, obliged to accept the theories they deduce therefrom.

While gratefully acknowledging the indebtedness, we do not forget that scientists have never acknowledged *the laws of nature to be the tendencies of the substance involved in its constitution*. Neither do we forget, that, in consequence of ignoring these tendencies as the forces efficient in the phenomena of nature, they have been forced to assume the existence and co-operation of two essentially opposite entitics,—one *a living power*, the other *dead matter*. The efficiency of the former

being absolutely indispensable, its existence is generally regarded as self-evident ; but, while the existence of the latter is regarded as demonstratively evident, its efficiency, other than *opposition* to design, is universally denied.

The wherefore of the interminable controversies with regard to the "aversion of substance to become the forms designed," and the "depravity of nature," is man's non-perception that minus mobile substance — that which is condensed within lesser areas of space — is nuclear, non-volatile ; while that which, in consequence of being condensed within greater areas of space, is atmospheric or volatile, is identical as essence ; and that the nuclear, in virtue of being the basic or centrifugal force, is the *directive soul* of formation.

The over-soul, or super-basic essence of nature, is what it becomes under the directive mouldings of the inner soul of nature's infinitude of forms, whether, as *forms of force*, they are termed physical or metaphysical.

18. Not perceiving that forms are purely *forms of force* ; and that, to be such, their ultimate constituents must be *force per se* ; and that, *to be force* complete in itself, each ultimate must be the wholeness of motive power, that is, *power to move and power to fulcrate motion*, in a word, must be constituentlly elastic, and so compressed interiorily and expanded exteriorily as to be *its own centrifugal and centripetal force unitized*, — speculators do not take into account that the more these ultimates are compressed, the greater the number of axes of force within a given area of space.

The sum of these axes of motion is the SOUL of Infinite Being. Nucleated as the directive force of each embryonic form, these axes become the bases of its

outer life, just as the sun's interior thermo-luminous essences, in being the bases of heat and light to the solar system, are *per se* the bases of its outer life, its expressed activity.

From the well-known fact that substance on the plane of sense-perception is elastic, and co-equally persistent and resistant, that it ascends and descends, rotates and circulates, as its conditions determine, we perceive, that, on the plane of essential being, *it is the essence of force complete in itself and unchangeably effective*, hence utterly indestructible and uncreatable, whatever the *form* or *duration* of its tendencies as regards *direction* consequent upon its modifications by space and time.

The fact that *the tendencies of co-equal quantities of substance become reversed or correlated under reverse spacial conditions* is irrefutable evidence of the homogeneity of its essence; and that, as the ultimates of form and force, they are essential counterparts under reverse conditions, hence reciprocally substitute each other's conditions by becoming alternately nuclear and super-nuclear. The surface-essences of the nuclei of spherules, spheres, and of objective forms, continuously represent the tendencies of their inner essences. Although we cannot think of a limit to the diffusion of substance as the content of infinite space whose form of moving as a wholeness is the wholeness of gravity, yet we can think of the centre of infinite space as the focus of infinite gravity; and taking the solar system as an exponent, and accepting its content as the essence and substance of form, we can conceptively create a prime nucleus, which is to the sum of the orbs in space what the sun is to the solar system, and can conceive that these orbs are indigenous to contradistinctly rotating

stratifications of infinite gravity, just as the planets, with their respective sub-orbs, are indigenous to contradistinctly rotating stratifications of solar gravity.

19. In perceiving that solar gravity is an inter-individuation of infinite gravity, we perceive that the substance involved in its constitution and that by which its motive power in the present is maintained, must have been indigenous to corresponding contradistinct strata of ensphering spheres of gravity.

This is inferred from the conditions necessary to the co-operation of counter-forces in machinery. Whatever the number of wheels, or their various representatives as *forms of force*, they must be so arranged, that the *directions* of their motive forces correlate. And, however complicated the inter-directions consequent upon its complication, a machine simply *modifies the directive tendencies of the prime basic and super-basic powers that move it.*

This, because the directions expressed in the motions of the different parts of the machine represent the direction of the elastic force of the atoms forced into and through it from wheel to wheel, through their respective axles, from the motive power applied.

Whether it be the centrifugal elasticity of steam, or the centripetal elasticity of water, the atoms set in motion at the point of impact expand from axle to periphery, and condense from periphery to axle, in each wheel throughout the series, in accordance with their radial lines of static force or form. The force of these persistent agents as a whole combines with the counterpart or resistant elasticity of the atoms set in motion at the articulating points of the machine, the earth being

the prime base, hence its movements are in *intermediate directions*.

The fact that the fulcral or resistant force of all forms of substance within it, animate and mechanical, coincide, hence co-operate with the earth's centrifugal or radial force, licenses the inference that the ex-central solar force of the planet-spheres coincides and co-operates with the centrifugal force of the sun.

Hence our inference that the general ex-central force of every sphere superjacent thereto coincides and co-operates with the centrifugal or radial force of infinite gravity focused within a nucleus that sustains the same relation to them that the sun sustains to its planet-spheres, or that the earth sustains to its atmosphere. And, by parity of reasoning, we also infer that the alternate condensations and expansions of the ultimate essences of force fruitful to and projected bilaterally from the lines of atoms radiating from and centering upon the nuclei of the spheres that make up nature's systems of spheres in their entirety, are the circulatory or dynamic agents of these centrifugal and centripetal lines of agental forces, relatively static, that move the machinery of each and all. But in accepting this as truthful within the solar sphere, in virtue of the power of the sun's thermal rays to permeate all bodies, we perceive, that, unless the solar system were a part of the universal organism, it could not have *become* or *be* what it is, or *do* what it *does*, any more than a man's hand could have become what it is, or be or do what it is and does, if disconnected from his organism.

Hence, in accordance with the inherent tendency of mind to reach back to first principles upon which to

base its conceptive creations, we accept the fact that all forms increase in structure and function in virtue of continuously assimilating the essence of substance from space external to their respective spacialities as positive proof that nature, the sum of what they constitute, is continuously increasing its organs and functions as a whole, in virtue of the continuous inflow of substance essentially germinal from the consecutively higher strata of infinite space by which it is atmosphered. In our correlative inference that the OMNIPOTENCE by which the machinery of the universe is moved is the sum of the alternate condensations and expansions of the essences of force inflowing and outflowing toward and from the centre of infinite space consequent upon their combination as agental organs and functions, through which these essences become expressed as the phenomena of nature, we do not detract one iota from all that ever has been or can be attributed to the Pantheistic or Monotheistic Ideal of the Alpha and Omega of existence. In claiming that this "Primordial Substance" is what it has become, we ascribe to it all that is knowable or conceivable by man as attributive. In analyzing the mechanical principles involved, we perceive, that, however complicated the machinery of nature as regards internal directions, it simply modifies the primitive directions of the elastic tendency of these prime lines of centre-tending and ex-centre-tending atoms, in like manner as the mechanical appliances of any machine modify the persistent force of the power applied and the equal resistant force of whatever the machine rests upon. The centripetal elasticity of the former is due to their extreme expansion; while the centrifugal elasticity of the latter is due to their

extreme condensation ; their combinability being due to their *equal tendency toward equilibrium at mediate altitudes*. The flow being continuous from these prime directions, the counter-tending atoms involved are forced into combination in co-equal quantities as the nuclei and atmospheres of consecutively more interior sub-spheres of gravity.

The centrifugal force of these nuclei, which, under the counter-elastic pressure of their contacting atmospheres is manifest as axial rotation, increases in the ratio of increase in quantity within a given area of space. As this force determinest he distance to which their free surface-atoms are radiated, hence determines the altitude of their atmospheric limits,—the super-base whence their external nutrient essences are inducted and centripetated,—their atmospheres are correspondingly rarified and clarified, and gradually fitted to condition the existence of consecutively more refined and more complex inter-forms. The arrangement of atmospheric compounds constituted of elements above and below their altitudes of specific gravity at definite distances above the earth's surface is evidence that it is the rotary velocity of the compound spherules, the mean of that of their elemental spherules, that determines their stratial positions.

The fact that solid, liquid, aerial, and super-aerial compounds predominate at consecutively higher altitudes from the earth's surface in the order named, is self-evidence that their decrease in specific gravity is due and proportional to their increase in spaciality.

Again : the fact that the evolution of heat and light, electricity and magnetism, necessitates the decombinantion and recombination of all these compounds, is self-

evidence that the empyreal grade of substance, through whose transitions from each to each, heat, light, electricity, and magnetism become sensibly expressed, is more diffused in each more spacial compound, thereby conditioning the more rapid axial rotation of their spherular nuclei, in like manner as the axial velocities of the planets increase in the ratio of increase in distance from the sun's solid surface; their orbital velocities being the *projection* of the sun's axial velocity to their altitudes. This difference in the spaciality of the constituent compounds of the earthy, the aqueous, the aerial, and super-aerial strata, upon whose elemental germs all their respective compounds and complex interforms subsist, accounts for the permanent elasticity and equilibriety of the aerial stratum. Whether or not there is a limit to its elasticity, yet by no process known to man has air ever been condensed to either a liquid or a solid state; neither has it ever been so attenuated by expansion, that it would not resume its aeriform state under reverse spacial conditions.

On the contrary, the predominant compounds of water and earth by artificial as well as natural expansion, become transformed into super-aerial compounds; the latter—predominantly meteoric vapor, ammonia, and mineral dust—becoming correlativey condensed as the former. The decombinations and recombinations provisional to these transformations are continuous in nature's interforms through the ingress and egress of or by a mutual exchange of the empyreal essences of their respective compounds. If, as we are forced to admit, these empyreal essences are combinable in virtue of their different spacial extensions, which are expressed as different degrees of axial velocity by their spherular

nuclei, and which, in the order of increase, represent increasing degrees of thermal force, from that of static electricity and magnetism, up through every phase of heat and chemic force indicated in the colored rays from red to violet, then they are not only fruitful to, but are, the organic essences of every element and of every compound and complex form they become by combining therein as its basic and super-basic nutriment. If so, those of our stratification, and of its, to us, predecessors, nuclear and atmospheric, are the organic essence of the earth-sphere; its every spherule, like itself as a whole, being insulated by electro-magnetic counter-currents, constituted of its own essences atmosphered by those of external elements. The fact that the earth is thus insulated is our license for assuming that such currents exist between our stratification and a higher, priorly discreted from direct contact with the earth's surface by the intermediate development of ours; and for assuming that the super-base of our stratification, and also of those consecutively higher, rotate contradistinct to its superjacent atmosphere as do the superficies of Saturn's rings, being propelled axially by the mutual re-action of the essences they radiate and those precipitated upon them. And, by parity of reasoning, we assume the existence of electro-magnetic currents, nuclear and atmospheric, between all priorly discreted stratifications; their nuclei or central organs, except our moon, being invisible; the substance of that pertaining to our stratification not being sufficiently aggregated; while that incasing the central organ or organs of a pre-lunar stratification is too diffused by its greater distance from the centre of terrestrial gravity. Hence we infer that the compounds and complex forms that

make up the circulating media between these stratifications are culminations of all forms below their altitude of incipiency, in the sense that their basic and super-basic germs are fruital to the elements of the stratifications below and above their respective spherical status. And we further infer, as a biological necessity, that these more dense but invisible stratifications, with their intermediate atmospheres,—assumed to be the homologues of Saturn's rings and their intermediate atmospheres,—sustain the same spacial and motorial relations to each other as do the conducting vessels and the circulating media of animal forms. Hence we assume, that when the essences or elemental germs fruital to the circulating media above our stratification are transmitted substitutively, or otherwise, and atomically combined with corresponding essences within the aqueous, the sub-aqueous, the aerial, and super-aerial strata, they become developed within them as intermediates between the specific structures parental to the super-basic or male germs, and those parental to the basic or female germs; the latter assumed to be typally indigenous to a sub-stratification whose elemental germs are basically nutrient to present water-breathing and air-breathing animals. From the fact that all forms of life objective to human sense become developed between the solid earth and its gaseous atmosphere, we can conceive that the spacial conditions of the elemental germs below and above them represent two contemporary planes of development,—the nuclear or embryonic plane, and the atmospheric or mature plane.

Thence we can conceive that the stratification above ours is the atmospheric equivalent of that below it, in the sense that it is the sum of the atmospheric organ-

isms of the stratification below ours, resurrected as their nuclear organisms on the, to us, post-mature or post-mortem plane; their elevation and transformation being effected by the combination of the atmospheric germs ripened on the mature plane with corresponding atmospheric germs ripened on the post-mature plane.

This transformation, by means of which the atmospheric germs fruital to the mature plane—our plane of sensible expression—become the basic germs of the elemental spherules of the higher or post-mature plane, necessitates the decombination or somatic death of their compound spherules on the mature plane, and the descent of their basic germs to a, to us, immature or pre-specific plane of development as the super-basic germs of *its* elemental spherules. Now we assume that this decombination, or separation between the basic and super-basic germs fruital to elemental spherules,—the agents of sense-perception and those of sensible expression,—and the descent of the former as the super-bases of less mature spherules, and the ascent of the latter as the bases of more mature spherules, *is all there is of death, or cessation of life*, not only on the elemental plane of being, but on every complex plane regarded as progress in maturation, or increasing ability to express increasing complexity in modes of moving. Taking it as granted that the first step above the essential plane is the aggregation of empyreal spherules, thence their aggregation as elemental spherules of continuously increasing refinement and complexity, thence their coherence as compound spherules through the counter-forcitiveness of their counter-spacially conditioned empyreal elements, thence on to higher steps through the coherency of compound spherules of differ-

ent specific altitudes, on and on to the development of present species of gaseous, mineral, vegetable, and animal forms, we perceive that all differentiations in form and function are predetermined by the primordial condition of essential substance as the omnipresent content of every altitude, latitude, and longitude from the centre of infinite space, the sphericity of which predetermined its omnipotence as infinite gravity.

This is a clew to the wherefore of the numerical increase of species as we approach the essential plane, and of a corresponding decrease in the number of species in the ratio of increase in complexity of movements. And it is also a clew to the wherefore that the essential germs that combine as their common offspring on the immature or pre-specific plane should become moulded into these counter-spacial conditions within the counter-spacial generative organs of the two sexes of each specific structure.

20. Again: taking it as granted that every atom of the earth's substance has of necessity been organized, hence, as essential germs *in ovo*, is as truly alive as those of an animal *in ovo*, we are prepared to find evidences of animal life in the densest rocks. This, for the reason rocks are animal products; while the basic germ of every vegetable is an animate, self-moving "spore." Many of the densest crystalline forms are known to be vegetable products. It matters not whether the basic predecessors of present forms, which, as such, are indigenous to consecutively lower strata, reveal their existence as consecutively later surface-forms in well-defined fossil structures, or as disintegrated compounds, each is as effective typically in the present as during the somatic life of the structure to which it was constituent prior

to the ascension of its essentially dynamic organism at somatic death. And perceiving that these sub-stratal water-breathers and air-breathers were as unadapted to subsist within the earth's present aqueous and aerial strata as our water-breathing animals are to subsist within our aerial stratum, although specifically akin to present water-breathers and air-breathers, we infer that they, as their lower altitudes indicate, were constituted of and subsisted upon lower octaves of heat and light. That is, the substance involved was lesser comminuted in accordance with the lesser spaciality of their native stratum or stratification of terrestrial gravity,—a wheel whose leverage is shorter and stronger in proportion to its lesser distance from the earth's axis of rotation.

The size and conformation of fossil animals prove that they were as much stronger, and their motions as much slower, than their representatives within our stratification, regarded as a succeeding and more extended wheel in the series constituting terrestrial gravity, as the revolution of their stratification or wheel is less rapid, and its fuleral force more condensed, than ours.

These phenomena also corroborate the assumption that the interforms of each intermediate stratum, or stratification, or sphere of gravity, are compounds of, hence crosses between, the lesser spaciality or mobility, and greater complexity in movements, of those constituting the stratum, stratification, or sphere below it, and the greater spaciality or mobility, and lesser complexity, in movements of the interforms of that above it. That is, in their culminate or aggregate capacity as the organs or machinery whose organic interchanges of essential substance in which the essential counter-forcitiveness necessary to effect their movements as wholes is inhe-

rent, each stratum, stratification, and sphere is as truly an individuated form of force as any form or organism within it. The functions of each alike, whether regarded as mechanical or vital, are maintained by the equal opposing motive tendencies of its nutrient essences. The diverse movements of atomic substance associated as forms of force are proportional to its quantity multiplied into its comminution as contradistinct atomic motors. This *atomic freedom* is consequent upon the increase of space in the ratio of increase in altitude, not only from the centre of the nucleus of a sphere of gravity to its surface, but from its surface to its atmospheric limits. It is identical with the law "that the space over which a body moves is equal to the time multiplied into the velocity." Hence we infer that above the periphery of our stratification all the elements and complex forms indigenous to each are repeated as the intergrowth of the consecutively higher strata of a higher stratification.

That is, their aggregate essential types or organic essences, when ripened within the successive strata of the lower stratification, are automatically atmosphered or re-embodied at somatic death by substance comminuted in accordance with the increase of the points of space within a higher stratification, which is necessarily a more refined plane of sense-perception, and of organization generally consequent upon the increased mobility of the empyreal essences upon which its forms subsist.

And we also infer, that in like manner as the aerial essences, elements, and complex forms, penetrate the aqueo-carthy stratum, each to a depth corresponding with their respective ability to displace or penetrate its various forms, so the essences, elements, and complex

forms of the higher stratification, in virtue of their greater subtlety, penetrate ours,—each to an extent commensurate with their respective ability to overcome the resistance of its indigenous forms. And that, in like manner as the tones of higher octaves in music, which consist of the more rapid vibrations of finer or higher-toned agents, interblend with their correspondents in lower octaves, producing harmonics not only on the plane of human perceptivity, but inter-repetitions on interior and sub-interior planes, which are as much beyond the range of man's sense of hearing as the communitions of substance whose counterpart modes of moving express light on corresponding planes are beyond his range of vision, so the modes of moving by forms within the higher stratification basically constituted of essences fruital to ours, and super-basically of essences fruital to a still higher stratification, interblend with those of corresponding forms on the lower and on the higher, inreaching and outreaching to the centre and circumference of Infinite Being,—all moving rhythmically as one form of force. Accepting these, to us, self-revealed principles of formation as our license, we recognize the strata upon whose essences the earth's surface-forms subsist as a contradistinct atmospheric stratification in process of development, its sensibly expressed growth being the growth of these surface-forms: hence assume that its outbirth as such will be effected at its maturement by the ascension of its atmospheric germs *in their organic capacity*, which will be the somatic death of its nuclear organism, and the descent of the elemental germs *in ovo* of every sphercule of the atmospheric organism as its correlative or substitute on the immature plane. Now, while we assume

that these representatives of their parent spherules on *their* immature plane of development so exactly substitute their condition, that if, by miracle, they could exchange conditions without outgrowth to the post-mortem plane, there would be no conscious recognition of the change by the resurrected, either human or brute; yet these germs *in ovo* must needs differ in form and function as elements from their parent spherules during their outgrowth across the mature plane. This, because all nature outgrows into greater spaciality while one of the earth-sphere's worlds is growing from the immature to the post-mature plane of human perceptivity. To the query, Are defunct fetal humans on the post-mature plane? we reply, Their disembodiment on the protozoan or pre-specific plane is their resurrection to the specific plane of human maturity. There is no intermediate disembodiment until their resurrection on the, to us, post-mortem plane. Their essential powers as a part of nature's essential powers are absolute. Nature's need of their organic functions conditions their organic existence on every plane of complex motivity: hence, instead of regarding the orbs of the "solar system, and inferentially those of all other systems," as having been rolled up into globes from different strata of diffused substance, we infer that nature *in nucleo* was the basis of what its out-formation reveals, and that its evolution was the involution of the same germinal substance as that known to be effective in the evolution of its additional forms in the present. As to *what* maintains the motive power of the prime nucleus and that of the sub-spherical nuclei as bases of force in the machinery of the universe is revealed in what maintains the motive power of our planet, viz., thermo-

luminous atoms, the motivities of whose constituent essences are recognized as daylight, received within its sunward hemisphere; and like atoms from higher strata, the intensely rapid motivities of whose more minutely comminuted essences are to human sense night or darkness, received within its anti-sunward hemisphere. Aerolites and meteoric water are the representatives of the solid and liquid food received by animal forms. And as to *how* these counter-tending rays are brought into combinable proximity is revealed in the earth's axial rotations, by which means those received from lower solar strata fall upon those received from higher, and *vice versa*, in continuous alternation. And, as to the *time* involved in the growth of the planet-spheres, the only clew is the answer to the question, How long would it require to build them up by the aggregation of these purely empyreal rays, their sole nutriment? And the only clew to their *spacial extension* as a whole, as the entire internal machinery of nature, is the inter-spaces between the orbs that make up the solar and stellar spheres, which are assumed to be filled by their atmospheric pabula in like manner as the pabula of a cluster of nucleated cells fill the inter-spaces between their nuclei.

But no advance in knowledge "transcending experiment" can be obtained by tracing the analogies and homologies of nature, the actual relations of its constituents, unless the spacial and timal conditions that determine the arrangement and motive tendencies of the counter-elastic essences of each are recognized as its *inherent qualities*.

This includes the recognition that essential substance is the agental or static motive power, and what it does

in virtue of the modifications of its intrinsic elasticity is the dynamic power involved in the being and doing of things.

If, as we are forced to admit as a mechanical necessity, the nucleus and atmosphere of each sphere of gravity are co-equivalents of substance, all alike in the aggregate increasing proportionally and simultaneously as parts of one whole, endlessly extensive, the former being condensed as much below as the latter is expanded above a medium degree of density, then the *wheretofore* of the vast distances between the solar orbs, and the proportionally greater distances between the objective system they constitute and the stellar orbs, the objective organisms of consecutively more distant spheres of gravity, is readily perceived.

21. Here we come in contact with two distinct and equally popular theories regarding the qualities of heat and light, both alike based upon the common-consent assumption that the sun is the source whence the whole system is supplied with these agents, which are now popularly assumed to be the ultimates of nutrition. The advocates of the "corpuscular theory" claim that the sun's rays consist of actual particles of its substance projected to the surface of the planets, which become reflected therefrom as heat and light, and that their intensity as such diminishes in the ratio of the square of distance from the sun; the result of which is a corresponding decrease of heat and light on the surface of the consecutively more distant planets. While admitting the same results, the advocates of the "undulatory theory" claim that the sun's rays simply produce certain "modes of motion" in the ether intervening between the sun and the planets. Their chief objection to the

former and earlier theory is the self-evident fact that the sun would in time become extinct from a continuous lessening of its substance. Both theories alike ignore the equally self-evident fact that the sun's power to project its rays can never exceed the reception of an exact equivalent of substance in which a co-equivalent of radiatory force is *inherent*. And neither takes into account that the laws of gravity within our sphere, which are known to be the tendencies of its substance towards equilibrium, must be the laws of gravity, not only within the solar sphere, but within the sphericity of infinite space.

As the coalition and comminution of substance within the sphere of its elasticity is determined by its altitude and latitude from its common axes of motion, proximate and ante-proximate, neither of which can be in excess compared with a mediate degree of density at intermediate altitudes and latitudes, we perceive that the "atomic theory" and that of the "infinite divisibility of substance" are equally true, the ultimates of each intersphere being *definitely graded*; while, as the content of infinite space, *their divisibility is infinite*. It is the plus condensation of the nuclear equivalent that conditions the plus expansion of the atmospheric equivalent, just as it is the coalition of the atmospheric substance within the perihelion hemisphere of a sphere of gravity that conditions the comminution of that within its aphelion hemisphere.

Although the substance of a sphere has its elastic limits at a definite altitude from a centro-lateral axis of motion, and at a definite latitude from a centro-longitudinal axis of motion, there is not a point within the sphere that is not continuously becoming equipoised by

a continuous exchange of essential force between its centre-tending and its ex-centre-tending equivalents. The co-equal ex-central and super-central pressure causative to this dynamic equility, which must be equal without as well as within the sphere, is unquestionable evidence, that although there is a definite limit to the divisibility of substance within individuated spheres, yet, in its conditional completeness as the essence of infinite being, its convergent elasticity in virtue of the coalition of one quantitative equivalent within minus areas of space, and its divergent elasticity in virtue of the comminution and expansion of the other quantitative equivalent within areas of space comparatively plus, *is necessarily limitless*. This, because the super-pressure of the centre-tending equivalent decreases conversely in the ratio of the square of distance from the centre of a sphere, which is the exact ratio of decrease in the resistant force of the ex-centre-tending equivalent.

The power of each and the demands upon it, and the effect of their conjoined motivities, are of necessity equal and co-equal; the effect being, *per se*, the combined counter-tendencies of quantitative equivalents of each, whatever their conditions.

It is generally admitted that all changes — chemical changes at least — are the effect of heat, light, electricity, and magnetism. If the forces recognized as such be sufficient to move substantial bodies, which is unquestioned, then these “imponderable agents” are substantial.

If the phenomena recognized as heat, light, electricity, and magnetism, are produced by their “modes of motion,” then the “mechanical” and “vibratory” theories of heat, and the “corpuscular” and “undulatory”

theories of light, and the “fluidic” and “vibratory” theories of electricity and magnetism, are all alike true. And if actual fire can be forced from all bodies, even from non-combustibles, by violent concussion, then the “phlogistic” and “oxydizaic” theories of combustion are alike true.

In accordance with the four-element theory of the ancients, we recognize four distinct grades of comminuted substances within our stratification; and, as there are three grades above the solid earth, we assume that each elemental spherule is constituted of three grades arranged in the order of their decreasing density above a solid nucleus, the difference in density and mobility between different elements being the result of different proportions of these grades; and assume, that in their combination as earth, water, air, and super-aerial gases, the compound spherules are aggregations of elemental spherules arranged in the order of their decreasing density from the nucleus of each, in such proportions that they represent the decrcasing density and increasing mobility or maturity of the earth’s strata of aquous, aerial, and super-aerial compounds. Hence we assume that the comminution and complexity of the grades of each higher stratification is the square of that of each lower, in accordance with the increase of space from the centre of a sphere. Thence, perceiving that the clasticity of the substance involved must become insufficient from over-expansion, even with a corresponding coalition centward, to sustain an unlimited increase of super-pressure, we recognize the inevitability of the individuation of the sphere of infinite gravity into interspheres and sub-interspheres *ad infinitum*; the axial force of the nucleus of each more internal sphere being

represented by the axial rotation of the nuclei of its successive interspheres. This recognition is based upon the perception that the earth-sphere is indigenous to the third stratification of the solar atmosphere, hence manifests the dynamic possibilities inherent in the substance of the third stratification of the sun below its solid surface ; the media by means of which the essential force involved becomes inverted, being indigenous to the third stratum of the sun's photosphere above its solid surface, which is to these internal and external counterparts what the retinal image of an external object is to its essential image concentrated within the focus of the eye, which image *perceives* the external image through the corneal image. The sun is the system's focus of heat, and its photosphere the focus of light, because aggregated of thermal and luminous essences comparatively staticised ; the latter being so condensed by concentration from the periphery of its atmosphere as to be just the refracting medium or lens needed to transmit to its solid surface for interpenetration like essences fruital to external spheres ; *the sun of each higher planet being a higher and rarer stratum of the sun's photosphere.* Taking it as granted that each intersolar planet and its atmosphere are quantitative equivalents of substance so conditioned spacially that they tend toward each other with equal force, — that between the earth and its atmosphere being fifteen pounds per square inch, — then, by parity of reasoning, the convergence of the sun's rays within the atmosphere of each equals their divergence on its periphery.

In virtue of this, their thermal and luminous force is equal on the surface of each planet, regardless of its size, or of its distance from the sun. It must be borne

in mind that every atom is continuously subject to the alternate plus and minus pressure of the atoms surrounding it, hence never does and never can cease to exert the motive force of its elastic tendency in accordance with its ever-changing spacial conditions.

In virtue of being an epitome of the entire system, the retinal lens is to the eye, the sphere it illuminates, what the sun's photosphere is to the sphere it illuminates. And the eye is no more dependent upon the thermo-luminous essences that radiate from objects external to its organism than is the solar system upon like essences radiated from the nuclei of like spheres external to its objective organism; each nucleus or orb having an atmosphere outreaching to a range of sense-perception corresponding with its degree of refinement and consequent complexity, *the real light of each being internal*. If their individual motions increase in velocity in the ratio their atmospheric substance is comminuted by increase in distance from their respective maternal foci of gravity, which involves a corresponding coalition of like essences centward, then the elements of form in each sphere increase in refinement and complexity of movement in their organic relations *in this ratio*. Hence the individuation of the sphere of infinite gravity into interspheres *ad infinitum*, and the coalition of the essences fruital to the cells of each form as inner and sub-inner elements *in embryo*, are identical in principle.

Again: instead of accepting the popular theory, that not until the lapse of incalculable ages from its incipiency was the earth fitted to sustain even the simplest forms of life, and that the life involved was utterly distinct from the assumed "dead matter" by and

through which it became sensibly expressed as their structural proclivities, we assume as a *mechanical necessity* that the earth's substance was never otherwise than intrinsically alive. And that in order to aggregate in the infinitude of forms necessary to effect movements in an infinite number of directions, thereby outgrow from the centre of terrestrial gravity, the essential substance involved must consist, not only of equal quantities primordially moving toward each other from diametrically opposite directions, but each equivalent must be adapted to substitute the other's conditions; the more static equivalent becoming comparatively dynamic by diffusion within greater areas of space, and the more dynamic equivalent becoming comparatively static by condensation within lesser areas of space in continuous alternation. Not only does this reversion of their spacial conditions reverse the direction of their opposite movements, but, at the extreme range of their respective elasticities, equal quantitics of each become statically combined as the vascular fulcra within which the equivalent of dynamic entities circulates. The static and dynamic equivalents of each form are necessarily equal; the latter being always refined and motile in the degree the former is condensed. The bones of animals are the static counterparts of the muscle-nerves by which they are moved, in the sense that they are built up of substance secreted by these inter-repeated and doubly-refined nerves, hence are of the same grade. The fact that birds of flight generate their needed quota of electro-magnetism from their mineral food by digestion is ample proof that the electro-magnetism of minerals exceeds in expansive elasticity that indigenous to every other form of food.

In recognizing the motivities of the empyreal grade of substance as life *per se*, we perceive no distinctions as regards grade of refinement other than its embodiment in vaseular fulera corresponding with the consecutively more spacial strata through which it is forced to outgrow; that of every sphere and of every form having descended from the primordial atmosphere, the Infinite Oversoul, within which all alike live, and move, and have their being. The infinite attributes of this Oversoul are by no means lessened in quality because its intertype and highest representative, the human soul, has grown up through the earth's mineral, vegetable, and animal kingdoms. Neither are the attributes of human souls lessened because of their commensal development with the soul-powers of every other form of substance. And just as the sum of the former's infinitude of essentially dynamie agents constitute the Infinite Ego, so the sum of the latter's essentially dynamic agents—the intertypes of those of the former that have become subjected thereto—constitute the Human Ego. Back of or below every sensibly-expressed form of moving or structural proclivity, whatever the plane of sense perception, there must be the same structural proclivities or tendencies to move repeated and sub-repeated within consequently lesser areas of space as *ingrowth*. This is continuously effected by the inbirth of the sensibly-expressed essence of things as the essential agents of sense-perception.

CHAPTER V.

1. THAT the structural proclivities of each organism is the sum of the motive tendencies inherited by its constituent essences, specific and nutrient, is self-evident. The fact that its specific essences are fruital to the elements of its parent forms, and its nutrient essences to those of its commensal forms, its own included, as were the nutrient essences of its parent forms, proximate and ante-proximate *ad infinitum*, accounts for the great number and variety of these proclivities. This, because they include samples of each and all the commensals of its every predecessor, in addition to the proclivities of its own commensals in the present. The change in their spacial conditions and functions by transposition from the atmospheric to the nuclear plane, and *vice versa*, does not change the identity of these essences. As the common offspring of the earth and its atmosphere, each species became the structure their essences were adapted to become at the era of its incipiency. Being the representative of their elemental condition at that especial stage of their development, each species must reproduce like clemental germs as those involved in its constitution; the elemental condition of the earth-sphere representing, in turn, that of the nucleus and

atmosphere of its proximate sphere, thus on back *ad infinitum*.

In like manner, the elemental germs fruital to the earlier organs of each organism become the bases of each later organ, each becoming incipient in the same order as the external species it represents; its super-basic germs being inter-repetitions of those of its external prototype.

Not recognizing empyreal agents as elemental forms, which necessarily differ in mobility at different altitudes and latitudes, as do the ponderable elements they permeate and atmosphere, and the complex forms they conjointly constitute and vitalize, chemists do not perceive that they are *spherules* of *gravity* contradistinctly motile; and that, in being the ultimates of sensible expression, they are to human consciousness in their free states the ultimate agents of attraction and repulsion, and, in their latent states, the ultimate agents of prehension and extension. Hence that, in the combination of elemental spherules of different spacialities, the divergent atmospheric rays of the empyreal spherules interstitial to their nuclei interlock, as do the atmospheric rays interstitial to the atmospheric nuclei or planets of the solar sphere, -- what they *equalize* and *vitalize*. When the common spaciality of combining elements is *decreased*, as is the ease in the combination of oxygen and hydrogen as surface-water, their latent empyreal essences are forced out as free thermal nuclei, the temperature of their surroundings being elevated by their rapid rotations. *Per contra*, when their common spaciality is *increased*, as is the ease in the vaporization of water, the temperature of their surroundings is reduced by the forcing in of free thermal nuclei,

whose axial rotation is the heat-force by means of which they ascend as the bases of meteoric water.

By regarding the combination of elements as the inter-penetratation of their atmospheric rays, in virtue of disparity in the spaciality of their spherules, it is readily seen that their mutual adherence increases *in the ratio of increase in this disparity, and decreases in the ratio of its decrease.*

This theory not only accounts for the fluidity of the spherules of the same element, and those of the same compound in a liquid or gaseous state from mutual repulsion consequent upon their being equivalents both in quantity and spaciality, hence equally forcitive in the same directions, but it also accounts for the lack of affinity between elements of kindred qualities.

2. For example, some of the supporters of combustion are either non-combinable, or indirectly so through the agency of other elements that afford the necessary disparity in motive tendency. This theory includes the recognition that these inter-cohering empyreal spherules, when staticised by their co-equal opposing forcitiveness in apparently "dead forms," are equally efficient as absolute force as when actively expressed as "consuming fire." The fact that the elements of compound spherules ascend and descend to their specific altitudes of equipoise, directly they are decomposed by the forcing in and forcing out of the thermal spherules which held them *in statu quo* as compounds, is ample evidence that their respective motive tendencies remain intact during their combination. For example, the thermal spherules that hold together the hydrogenic and carbonic spherules of hydro-carbons, tend, as do these elements, in opposite directions. In rushing between

the spherules of hydrogen and carbon during combustion, their decombination, the oxygen and nitrogen of the air simply gravitate to an intermediate altitude in accordance with their intermediate specific gravity. Like every other form of force, fire must needs be procreated by a like form of force. This, because the *projectile force* by means of which the ultimate germs of form are outborn as fruitage, goes with and remains intact in them, when inborn as the *initiators* of a like form of force. The initiatory or birth-force of combustion consists of the force imparted by empyreal agents in that especial state of activity recognized as flame to the combustible bodies within which they become inborn. Fire grows by the decombination and recombination of the elements of its basic and super-basic fuel or nutriment within its range of force, and dies out without it, just as do all other *forms of force*. The specific force of fire and flame is coincident with the centrifugal force of terrestrial gravity. The specific force of oxygen and nitrogen combined as atmospheric air is in every bilateral direction toward the vacuoës caused by the explosive separation of the basic and super-basic elements of the fuel involved. This results in their explosive separation. Hence the sustenance of fire, like that of every other form of force, necessitates the decombination of combustible compounds whose basic and super-basic elements tend respectively toward and from the earth; and of supporting compounds whose basic and super-basic elements tend in every intermediate direction.

In the combustion of hydro-carbons, the chief supporter is aerial oxygen. When freed, each clement expresses its pre-combined tendencies; the carbon

descending, and the hydrogen ascending perpendicularly; the oxygen and the nitrogen flowing in every bilateral direction, toward the medium altitude of the fire. Flame consists of three visible and three invisible strata of compounds above its base, arranged in the order of their decreasing specific gravity. The first is predominantly carbon and hydrogen; the second, oxygen and hydrogen; the third, oxygen and nitrogen. These nuclear strata are the gaseous representatives of earth, water, air, and fire, on the objective plane of condensation. The fourth stratum is predominantly nitrogen and oxygen; the fifth, aqueous vapor and ammonia; the sixth, ammonia and carbonic acid.

These three atmospheric strata are the representatives of fire, air, water, and earth, on the non-objective plane of condensation. That is, in consequence of their reverse spacial conditions, the glintings of the more finely comminuted and more rapidly rotating spherular nuclei are beyond the range of human vision. These freed elements are forced to combine as counter-conditioned or insulating strata, because held in direct opposition within combinable proximity, by the pressure of the atmosphere surrounding the vacuum produced by their combustion. But for this change in the spacial and timal conditions of the elements undergoing decomposition,—by which the flame becomes instantly insulated by a system of counter-currents, in like manner as the electro-magnetic currents out-tending from the earth are held in comparative equilibrium by the counter-currents of its atmospheric strata, the same being true of its every other inter-form of force,—there could be no such thing as *light* or *life*. Accepting this, the next step needed is to ascertain the different forms of mov-

ing by the spherular nuclei of the so-called "essential elements,"—carbon, oxygen, nitrogen, and hydrogen, the specific gravity of which decreases in the order named.

If, as assumed, they respectively inherit the axial rotations of the sun and the orbito-axial rotations of the planets Mercury, Venus, and Earth, then those predominating at consecutively higher altitudes vary in the same respects as do those of the consecutively higher planets. At its nuclear altitude carbon is a fixed solid; while oxygen as the predominant element of the aqueous stratum is liqueform. When combined as carbonic acid gas, their compound spherules inherit only the horizontal motion of the earth's superficies, being fluidic from mutual repellence. Its form of moving is therefore directly at right angles to the free movement of carbon and hydrogen, the perpendicular supporters of fire, and more directly opposed to the movement of oxygen and nitrogen, the bilateral supporter of fire, than the elements of water.

When poured upon a burning body, the horizontal movement of its empyreal nuclei instantly counter-balances the perpendicular force of the spherules ascending as heat and light. The predominant resulting combinations are between the escaping carbon, oxygen, and hydrogen, as carbonic acid and aqueous vapor.

Carbonic acid gas is more effectual as a fire-extinguisher than water in the degree the momenta of its elements are more directly horizontal.

When water is poured upon fire, its escaping elements assume their pre-specific form, that of aqueous vapor or meteoric water. Owing to its weaker or less direct horizontal momentum, it is not only less efficient, but,

when the axial rotations or heat forcee of the eseaping empyreal nuclei of the fuel involved are sufficient to overcome the forcee of the latent or interiorly rotating empyreal nuclei by which the oxygenic and hydrogenic spherules of the vapors are intercohered, they are de-combined as free oxygen and hydrogen gases, which, as such, support the fire, instead of lessening its intensity. This is readily illustrated by sprinkling water on a wire gauze, beneath a jet of flame. The drops instantly explode as minature flame-jets. These phenomena reveal the wherefore that some bodies are more, and others less, combustible ; and that some elements support combustion, while others are non-supporters, or relatively so.

Bodies whose predominant elements descend and ascend perpendicularly when free, such as hydro-carbons, are *combustible*; while elements whose stratial momenta, as well as the orbito-axial rotations of their nuclei, are intermediate, are *supporters* of combustion.

Burnt bodies are non-combustible, because the empyreal spherules interstitial to their elemental nuclei have been driven off and replaced by intensely heated nuclei, which, although latent therein, inherit the same intense exterior activity. Their eondition as such is relative. When this latent heat is driven off by a greater degree of free heat, it becomes free heat; while that which expels it becomes latent in the priorly burnt body, by substituting its spacial condition. When these more numerous and more expanded empyreal spherules become condensed within the same pores priorly filled by the lesser number and lesser expanded spherules, the combustibility of the body is correspondingly reduced. Water is a burnt body in the sense that the heat by

which their intermediate stratum of air was expelled is latent within the interspaces it priorly occupied in the spherules or miniature repetitions of the aqueous, aerial, and super-aerial strata they priorly were. Carbonic acid is still less combustible from the latency of the greater degree of heat requisite to drive off the aqueous stratum that intervened between the altitude of solid carbon and that of the aerial oxygen in their compound spherules,—miniature representatives of the earthy, aqueous, and aerial strata. The *matured* or *ripened* empyreal spherules of each body, in their organic capacity as its soul or essential organism, is adapted to resist an equal, but not a greater, degree of heat-force than their nuclei priorly inherited from their empyreal ancestors.

3. That difference in quality between elements is due to different spacial and motorial conditions at their altitudes and latitudes of predominance, which fashion their forms, and determine their functions, is everywhere corroborated *by their modes of moving*. Hence we recognize as a LAW OF NATURE that all the modes of moving by which the counter-tending essences fruital to preceding forms are brought into equilibrium as the constituent essences of succeeding forms, become inherent as the latter's *functions or structural proclivities*. The structure of each organic form of substance is determined by the typal tendencies of its incipient empyreal spherules, and is built up by the exertion of their ex-nutrient or ripened essences at the metes and bounds of their respective ranges of expansion and condensation.

The vital elements of forms repeat the parental functions, because, like the parent forms, they are constituted

of like quantities of counter-elastic empyreal essences, condensed within like plus and minus areas of space, and subjected to like degrees of plus and minus surrounding pressure, with like periods of time between their alternations. This is our ideal of the "correlation of forces," which is identical with the counter-functions of sex on the plane of essential organization.

The fact that the basic essences of their common offspring are moulded within the more interior and less spacial genitals of the female of a species, and the super-basic essences within the more exterior and more spacial genitals of the male, is conclusive evidence that these archetypal provisions are simply the needed spacial and timal conditions whereby to effect the plus and minus condensation of their fruital essences; their consequent counter-elasticity being *per se* the cause underlying their essential organization or atomic combination as the bases and super-bases of their specific structure *in embryo*.

This moulding reveals the necessity for their different generative functions.

The generative organs of the two sexes, like all their other organs, are developed from the same plan, with no other arrest or extra progress than the descent of the ovaries (testes) of the male about the time of birth as the condition necessary to effect the minus condensation of their contents.

The appendages by which their counter-tending elemental germs are brought into combinable proximity, and within which their specific formation is inaugurated, always accord with the need that conditions the development of the species. In the higher species, the requisite restrictions of the circulating fluids of their

embryo forms is effected by their gestation within the less spacial organism of the female; while in the lowest species, this restriction is effected by their gestation or hatching within the less spacial organism of the male, within whose gestative appendage the female instinctively deposits her ova.

This lowly and simple degree of automatic pre-science was the inauguration of the complexity in structure and in intellectuality that is now expressed through the physical and intuitional faculties of humanity, in which species the spaciality and spherical position of the generative organs of the sexes are most opposed. Although, in the development of the animal kingdom, male organisms are gradual outgrowths from female organisms, yet the *male principle*, the pro-creative force of the prime centre-tending essences of form, necessarily preceded their formation by whose ex-centre-tending essences, the *female principle*, it thenceforth became inseparably counterparted.

As all correlations of force are between the essential representatives of the formative force inherent in the counter-part germs of the two sexes of a species, we must bear in mind that the female germ is nuclear, the representative of the earth: hence, like the substance of the earth, the motive force of its substance is *centrifugal*; while the motive force of that of the male germ, like its prototype, the earth's atmosphere, is relatively *centripetal*. Next, we must bear in mind that each form and each organism is a representative of both its parent forms,—the earth and its atmosphere, through whose counter-functions its essential substance becomes aggregated, and its intrinsic elasticity moulded into correspondence with that of the substance of every other

form within the same strata of subsistence. In virtue of this, each object has its co-equivalent of atmospheric or non-objective substance.

Hence only as we accept the changes taking place in the nuclear organism as criteria by which to judge of what is taking place in corresponding parts of its atmospheric organism, can we obtain a clew to the *wherefore* or *how* of the movements of the former as counterpart functions of the latter.

Our only clew to the counter-part occurrences on the peripheries of the earth's successive atmospheric stratifications is the changes occurring on its aqueo-earthly surface, on the supposition that the motive forces involved in the latter are *reflections* of those involved in the former. Only in so far as we are able to perceive the motive tendencies inherited by and operating upon the substance of the atmospheric counterparts of the successively developed systems of circulation that make up our objective organisms can we account for its so-called "voluntary and involuntary movements."

We will therefore study the functions of the earth's atmosphere through what is revealed objectively in the functions of its surface strata, taking it as granted that the basic power involved is the earth's orbito-axial revolutions.

4. For reasons to be given in detail further on, we assume that the nucleus or sun of the sphere within which it subsists sustains the same relation to the solar sphere as a whole, as its nucleus, our sun, sustains to each of its planet-spheres. And also assume that the solar sphere is built up of rays of essential substance centrifugated from *its* sun, and concentrated first as the solar sun, which, in becoming reflected therefrom as its

divergent rays, combine at every point within its atmosphere with like but *later* rays from the earlier sun converging toward the later sun.

And we further assume that the magnetic equator of each primary planet of the solar sphere is the plane of the perpendicular rays of this *extra* solar sun, their *paternal* sun, upon the periphery of the solar atmosphere concentrated as their respective *extra* solar orbits. Thence regarding the circles described by the maternal sun's perpendicular and most oblique inter-tropic rays, which circles cross each other at the equinoxes, as the earth's atmospheric equators, we perceive that the alternations of plus and minus pressure by these perpendicular and oblique rays upon the earth at their highest and lowest latitudes, bilateral to and on its equator at diagonally-paired points, are prototypal of the alternations of like plus and minus degrees of pressure upon the limbs of quadrupeds as they become diagonally poised upon, and raised from the earth during locomotion. And also perceive, that, as these rays become reversed from their highest latitudes, their position in crossing the plane of the earth's equatorial rays are prototypal of the position of like plus and minus degrees of super-force upon the spinal column of quadrupeds midway between the alternations bilateral to the line of their direct advance,—an intertype of the earth's orbit; while the position of the poised and raised limbs are becoming reversed. That is, the direct force of the luminous, and the reflex force of the non-luminous, rays upon the earth at these points of reversion, are prototypal of the forward force of the front raised foot of the animal, and the backward or pushing force of its hind poised foot; while the minus pressure

of the oblique luminous and non-luminous rays at their highest latitudes are respectively prototypal of the oblique forward reach of the raised front-foot of the animal and the oblique push of its poised hind-foot.

The counter-fulcra against which the reflex force of these perpendicular and most oblique inter-tropic rays are pitted, which are directed to and reflected from definite counter-points on the earth's surface, are the denser and rarer elements below and above its medium altitude within the solar sphere. Being priorly radiated from its paternal sun, and reflected from its maternal sun at corresponding counter-points, their combined elasticities within and without its gravitational limits, force the earth in a mediate direction compared with the directions in which its counter-parent suns are forced to move by the counter-pressure of like counter-tending rays. That is, the cause of the general pressure upon the earth's atmosphere by its maternal sun's rays is a like pressure by like parental rays upon the solar atmosphere, thus on back *ad infinitum*, the same being true as regards the cause of alternate plus and minus pressure upon special points on the earth's surface, and upon special points on the surface of its animal organisms, — its organs.

While the mechanical principles involved in the increasing orbital velocity of the atmospheric stratifications and nuclei of included spheres in the order of their decreasing distance from the nucleus of the culminate sphere may be readily perceived, the fact that the areas of special pressure by the rays of each more outer sphere are focused upon each more inner nucleus or planet as definite fulcral points provisional to corresponding re-actions in corresponding *increasing* periods of time, like the earth's magnetic equator and poles of

extra solar magnetism, and upon its atmospheric superbases, is not so readily perceived.

For reasons still less obvious, to be given further on, we recognize the earth's northern magnetic pole, whose present locality is about 70° north latitude and 95° west longitude from Greenwich, Eng., and its antipodal point in the southern hemisphere, as the poles of the circle described by the perpendicular rays of the sun's sun concentrated upon its surface as its equator of *extra* solar magnetism during one revolution of the earth's equinoxes, in like manner as those of our sun are concentrated upon it as its equator of *intra-solar* magnetism during its revolution around it to the same equinoctial point; thence recognize the meridian passing through the points whence the perpendicular rays of the former sun become reversed from their highest latitudes north and south of the equinoctial, as a super-solar solstitial colure, concentrated upon the earth as the line of its present super-solar ebb-tides, at antipodal points 20° south and north of its equator; the line of its super-solar flood-tides being at intermediate points on a super-solar equinoctial colure; that is, on the assumption that the earth's paternal sun is near one of its solstitial points on the meridian of the north magnetic pole 90° therefrom. Thence, on the principle of repetition, we recognize the pressure of the moon's perpendicular rays, direct and reflex, at its greatest distances bilateral to and on the earth's equator—the cause of its lunar tides—daily and monthly, as the representative of the most oblique and rectangular pressure by the perpendicular rays of the earth's paternal sun during its equinoctial and its apsidial years. The perpendicular rays of its maternal sun are so counter-

poised by this representative of the male principle within the earth's atmosphere, that the daily and annual counter-tides under their most oblique and rectangular pressure are apparently far less efficient than its lunar tides. When we take into account that the annual movement of these super-solar rays, in their concentration as the earth's equator of *extra-solar* magnetism from the periphery of the solar atmosphere to the earth's altitude within it, is only 50", while those of the maternal sun move over 360°, we readily perceive that they, by a reversal of their spherical position and spacial condition, have become negatively elastic or female, compared with those of the maternal sun concentrated upon it as its equator of *intra-solar* magnetism; that is, the latter rays are minus condensed and minus expansive in the degree those of the former are plus condensed and plus expansive, compared with their combined density. Thence, recognizing the equal force of the counter-spacial spherules they become, whose paramagnetic and dia-magnetic tendencies are equal in the aggregate, and also the stratial fulcra provisional thereto, we perceive the inevitability of the reverse movements of the planet-spheres they become above and below and bilateral to the line of their direct locomotion through space. The formation of solid incasements above the consecutively higher stratifications of the earth's atmosphere is inevitable from the fact that there is a definite limit to the expansibility by comminution of every grade of elements within each. For example, the elements of water ascend to a definite altitude, those of air to a higher, and those of ammonia to a still higher, above which stratial level they can ascend only in combination with elements indigenous to a stratum above

that to which these compounds ascend. Hence, just as the compounds of each stratum have their elastic limits, so the compound strata of each higher stratification have their elastic limits, above which the rarer elements indigenous to a higher stratification interlock with its elements. These, in combination with the vascular conductors of their united horizontal counter-currents of empyreal fluids,—a perfect net-work,—*form a solid, transparent super-base.*

That is, a medium or membrane through whose pores the rarer empyreal essences are transmitted earthward; the denser being photographed upon its upper surface, while the denser ascending essences are photographed upon its lower surfaces. It is in virtue of being constituted of these denser essences, which are fruitful to the elements of the forms indigenous to strata above and below it, that this membranous medium is adapted to so mould the elasticity of the elemental germs passing through it, that they are the essential counterparts of the like but counter-spacial and counter-tending germs with which they combine as embryos of like forms within the higher and lower strata. All membranes possess these inducting and educting properties. For example, the true skin of animals, like all divisor-connecting membranes, is dual, because made up of the denser spherular nuclei of the elements whose rarer nuclei pass through it from opposite directions. These counter-foreitive nuclei become directly opposed, like the opposing cells in honeycomb. Hence only the empyreal grade of essences are permitted ingress and egress between the nuclei of the empyreal elements that constitute their atmospheres; which essences, by a continuous succession of like essences, grow into like ele-

ments as those above and below the membrane between the nuclear and atmospheric organisms of the animal. We must bear in mind that the atmospheric organism of the earth-sphere,—its ever-living soul,—like that of each animal, is simply rooted in the nuclear organism within which its essentially vital germs become fitted to progress through consecutively higher stages of maturation. As its roots or nuclear ancestry extend backward, as do those of its branches or ascendants forward, it is readily seen, that, although constituted of the same essential germs which grow into the same elements, and culminate in the same specific form, yet, as elements, they represent two distinct planes of maturement,—the male or atmospheric, and the female or nuclear. It is in this sense that sons and daughters are the timal correlatives of their parents, in being on the embryonic or nuclear plane, when their parents are on the mature or atmospheric plane: hence, as elements, the nuclear organism becomes disintegrated by the outgrowth of their essential germs, when at somatic death its representative *Form* or *Spirit* passes on to a higher plane of sensible expression. Life is inseparable on the essential plane. The *past* of all surface-forms and of intermediate strata is represented by their descendants; and their *future*, by their ascended ancestors. The assumption that there is a corresponding membranous medium between our stratification and a higher is strictly in accordance with the principle of repetition as revealed in the structural and functional relations in the animal kingdom. So is the assumption that the predecessors of our world of specific forms become re-existent within the consecutively higher stratifications of space through which their essential germs were moulded *in transitu*

prior to their incipiency as past surface-forms. The present existence of essential substance as sentient forms is simply the dividing line between its beginning-less pre-existence and its endless re-existence.

As regards the altitude of the super-base of our stratification, our only clew is the supposition that the aerial stratum extends not far above its highest mountains, and that the square of its altitude is the limit of the super-aerial stratum; *its* atmospheric strata being correspondingly extended. By regarding this boundary between our world of forms and a higher as a solid, transparent, membranous medium, the falling of luminous meteors and other aerolites—fused and crushed into shapeless masses during their descent—may be accounted for on the supposition that they are aggregated or ripened on, and detached from, its interior surface as refuse or fruitage.

5. In our ideal of the phenomena of electricity and magnetism, the substance of the sunward hemisphere of each planet-sphere is increasingly negative or plus-expansive from the magnetic equator to the magnetic poles, and increasingly positive or plus-condensive from the magnetic poles equatorward, on the anti-sunward hemisphere. And while the magnetism of the polar hemispheres of each is relatively positive above, and negative below, its medium altitude, its tendency to flow equatorward increases in intensity from either side of the magnetic equator toward the magnetic poles, in the ratio of decrease in longitude therefrom. These tendencies are more apparent in the earth's atmospheric magnetism than in its non-volatile surface-magnetism. Licensed by the fact of their actual discovery, we assume that the westward-tending currents of electricity that

flow in the sun's wake, and tend poleward from either side of the magnetic equator, in accordance with the earth's decrease in longitude, become gradually reversed as equatorward magnetic currents at the polar ellipses, where the light and dark rays are alternately wanting.

As these magnetic surface-currents cross the electric surface-currents at right angles,—both alike being alternately light and dark, or negative and positive,—they are the warp and woof of the earth's surface-membrane, a perfect incasement, except within the half-naked polar ellipses.

We recognize these reticulating lines, which are continuously becoming staticised as form, as prototypal of the fibrous portions of the cellular membranes by which animal and vegetable forms as wholes, and their internal organs and cells, are incased.

And, by parity of reasoning, we recognize the empyreal fluids interstitial to the ultimate nuclear fibres of the ultimate cellules of an organism as the essentially organized soul of each. Thence recognizing the cells of the earth's surface-membrane, the sum of those of its surface-forms, as the matrices within which the counter-tending essences of crystals are moulded, we have a clew to the multiplication of their radii as revealed in snow-crystals and mineral-crystals formed at, or indigenous to, different altitudes and latitudes of comminution and coalition.

Thence recognizing the rays of our sun, combined with like rays from its sun, refracted within the solar and terrestrial atmospheres, and concentrated upon the earth as latent heat or static electricity, and latent light or static magnetism, the rays of these suns being introverted within the empyreal spherules they become

in the order of their greater acuteness as the soul-force of each, we perceive the wherefore that the reflex force of the latter increases and decreases in directions angular to those in which the reflex force of the former increases and decreases. The wherefore consists in the greater prolongation or refrangibility of light and dark rays compared with that of thermal rays. The equator of the former is the plane of the sun's perpendicular rays; that of the latter, the plane of the earth's equatorial rays. By combination with like earth-tending rays, these thermal rays are deflected bilateral to the earth's equator, thence concentrate at the astronomic poles; while its light and dark rays are concentrated twenty-three degrees and a half beyond the astronomic poles.

Owing to the earth's globular form, the horizontal circle described by the line of contact between its light and dark rays extends to latitudes within its atmosphere as much above these poles as their lowest points of contact with its surface are below them. These atmospheric poles, which we recognize as the foci of chemic force within the earth's summer hemisphere, and of gelid force within its winter hemisphere, are at the upper apsis of the elliptical areas where the light and dark rays are alternately wanting.

Day and night are intertypes of summer and winter; the luminous hemisphere, like the summer hemisphere, being always toward the sun. The meridian point where the mid-day rays are reversed is diagonally paired with the meridian point where the midnight rays are reversed in the opposite polar hemisphere, just as the summer solstitial point is diagonally paired with the winter solstitial point in the opposite polar hemisphere. And just as the poles of the axes of its illu-

mined and darkened hemispheres revolve around the earth's axis of rotation daily, so the poles of its summer and winter hemispheres revolve around the solar sphere's axis of rotation annually. In virtue of these correlations, the extreme range of the earth's atmospheric pole of summer or negative magnetism at the higher apsis of the polar ellipse is always diagonally paired with the pole of winter or positive magnetism at the higher apsis of the opposite polar ellipse; which polar points are about forty-seven degrees above the summer and winter poles of nuclear light and darkness at the lower apsis of these opposite ellipses. As negative electric currents always flow, first westward, thence gradually tend poleward on the earth's sunward or negative meridian hemisphere, from the plane between its polar hemisphere of negative boreal and austral magnetism, the entire meridian hemisphere of negative or luminous rays, which are always below them as regards solar gravity, fall upon the electric currents perpendicularly. *Per contra*, positive electric currents which flow eastward, thence tend poleward within the earth's anti-sunward hemisphere, are below its perpendicular rays of non-luminous or positive magnetism. The whilom poleward atmospheric currents of negative electro-magnetism, by combination with the whilom rays of positive electro-magnetism, become equator-tending surface-currents of magneto-electricity within the earth's darkened or positive hemisphere; while the poleward atmospheric currents of positive electro-magnetism, by combination with the rays of negative magneto-electricity, become equator-tending surface-currents of magneto-electricity within its illumined or negative hemisphere.

This is why magnetic currents are always more or less angular to electric currents when free to express their inherent tendencies, and the wherefore that their directions are reverse above and below electric currents.

6. By regarding thermo-luminous spherules as miniature solar systems up to the earth's altitude, and regarding them as being electro-magnetic spherules under reverse spacial conditions, we at once perceive that the acme of heat force is of necessity at the point of greatest friction; and that its decrease is in the ratio of the increase in distance to which the volatilized super-nuclei are projected, whose increasingly rapid axial glintings are *per se* the increasingly prolonged rays of color. Hence we find the acme of heat below, and the acme of chemic force above, the colored rays. Thence by regarding their increase in condensation from the acme of their expansion as rays of color, as increase in chemic force, ability to re-expand, we perceive that the acme of chemic force is at the earth's atmospheric pole of summer or negative electro-magnetism. This ability of the empyreal fluids at the summer or chemic pole to expand in the direction of the winter or gelid pole in the opposite polar hemisphere is diametrically opposed to the equal ability of those at the latter pole to condense in the direction of the former pole.

Their dynamic equilibrium is continuously maintained by the semi-annual reversion of the earth's latitudinal position.

This is effected by the decreasing expansibility of the fluids within the summer hemisphere from its highest latitude within one polar hemisphere of the solar system, in the ratio of the increase in expansion by those within the winter hemisphere, until the earth is

fored to an equal latitude within the solar system's opposite polar hemisphere. In order to pereeive the sexual funtions of these diametrically opposed summer or chemic rays, and winter or gelid rays, we must bear in mind, that, in consequence of their higher latitudinal position within the solar sphere, the latter rays are always plus condensed at the aeme of their expansibility, compared with the density of the former at the aeme of their expansibility. The earth's darkened hemisphere, as also its gelid pole, is always outermost during its entire orbital revolution, not only bilaterally to its highest solar latitudes, but to its highest and lowest altitudes; all its heat and light being developed within its orbital and axial ranges, not beyond its atmosphere, the periphery of which is an inter-repetition of its orbit; its one axial revolution being *per se* one orbital revolution, like the periphery of our moon.

The fact that the sunrise and sunset lines of incomming light and darkness, negative and positive electromagnetism, are spiral, winding around the earth to vanishing-points, clearly indicates that the electro-magnetic spherules flowing poleward within its sunward hemisphere, and which increase in density in the ratio of its decrease in longitude, become reversed as magneto-eleetric spherules on the lines of their reversion as equatorward currents within the earth's anti-sunward hemisphere; while the positive eleetro-magnetic spherules within its darkened hemisphere become reversed as negative magneto-eleetric spherules within its illumined hemisphere.

That is, the central and super-central nuclei of electro-magnetic spherules, whose elasticity is respectively centrifugal and centripetal, exchange their fun-

tions by the introversion of the latter as central nuclei; while the former become extroverted as super-central nuclei. Or, in other words, the vital fluids of the earth's upper air-currents at the acme of their ascent as such within its positive or upper hemisphere descend spirally to the axial or embryonic plane of maturity as the vital fluids of its surface-currents within the negative or lower hemisphere, the spherules of which, at the acme of their expansibility as negative or spirally-ascending magneto-electric spherules, by combination with the sun's direct perpendicular rays, ascend perpendicularly as thermo-luminous spherules under the bilateral pressure of the bi-polar equatorward currents that continuously succeed them. During their ascent equatorward their negative electro-counterparts are descending poleward. And just as the former substitute the spacial and timal conditions and consequent functions of the latter by combination with gelid essences descending from higher altitudes, so the latter substitute the spacial and timal conditions of *their* predecessors by combination with the gelid essences of higher latitudes, thereby becoming the magneto-electric vitality of the surface-currents within the earth's positive hemisphere. At the same time that their predecessors are becoming the electro-magnetic vitality of its super-surface currents by combination with gelid essences from correspondingly higher altitudes whose corresponding condensation is such as to cause their descent to the lower department of the female plane of maturity on the earth's sunward surface, those given off in exchange from the higher currents of the male, or anti-sunward hemisphere, are becoming the bases of a still higher system of counter-currents.

This interchangeability of function between the central and super-central nuclei of the empyreal spherules whose counter-elasticity is the basic cause of their consecutively higher counter-currents, is revealed in the interchange of function between the rays of the sun and those of the planets, which are continuously substituting each other's condition in becoming alternately direct and reflex, thermal and gelid, and luminous and non-luminous; external pressure being the super-basic cause. The sun's centrifugal rays are what the rays priorly centripeted upon it *become* when reflected in combination with like rays in process of descent.

This is the "trinity" of colors. The prior incidental rays, whose descent was in virtue of combination with the denser essences of like rays in process of ascent, become reflected in virtue of combining with the rarer essences of like rays in process of descent. When these rays are refracted from the periphery of the earth's atmosphere, and converged upon its surface, they are reflected therefrom in reverse order. That is, the centripetal rays within its whilom darkened hemisphere become reflected as luminous rays by exchanging their denser essences for the rarer essences of the sun's rays in process of descent within its sunward hemisphere.

If, as we are licensed to infer, the prior and present centripetal rays increase in mobility in the ratio of increase in space from the earth's surface to the super-base of our stratification, then luminous rays are combinations of like but counter-condensed rays, the orbital range and axial glintings of whose empyreal nuclei increase in the same order and ratio. That the refrangibility and vibratility of the rays of color do increase in this order and ratio is fully demonstrated.

This is our license for assuming that each spherular nuclei, whose different rotations express different colors when decombined, has its illumined and its darkened hemisphere; the decomposition of white rays being simply their distortion or refraction, caused by passing between the dense perpendicular photospheric rays of essential substance that are continually entering and issuing from the surfaces of the prism, just as they are from the surfaces of all forms; so that the glintings of the atmospheric nuclei, or planetules of the spherules involved are not focused upon their respective central nuclei or sunules. This is why the acme of heat, the intense axial friction of the sunules, is below the rays of color, the axial glintings of the planetules. The latter's lessening friction from lessening orbital velocity, and increase in axial velocity in the ratio of increase in altitude and spaciality, is, *per se*, decreasing heat. By regarding the prime colors—red, yellow, and blue—as different expressions of the combined rotivities of the spherular nuclei of the earth's counter-tending photospheric rays under different degrees of pressure, we have in their analysis a clew to the how and wherefore of expressed heat and latent heat, on the assumption that luminous spherules are miniature repetitions of the solar sphere at the earth's altitude.

We will suppose, that, in the composition of air, oxygenic spherules are atmosphered by nitrogenic spherules; and that, from its altitude of predominance immediately above the earth's surface, oxygen decreases in the ratio nitrogen increases up to the predominant altitude of nitrogen; thence that both these elements in this ratio of decrease become atmosphered by increasing proportions of hydrogen up to its altitude of

predominance; thence that all these in this decreasing ratio become atmosphered by increasing proportions of super-aerial oxygen and carbon, up to the predominant altitudes of meteoric water, ammonia, and carbonic-acid gas respectively. Then, on the principles before mentioned, we perceive that the pressure and density of our illumined hemisphere at the altitudes where oxygen, nitrogen, and hydrogen predominate, are such as would condition the expression of red light, yellow light, and blue light respectively, if it could be prismatically separated from the earth. Analytically regarded, the excess of orbital and deficit of axial velocity, that express red light, are correlatives of the excess of axial and deficit of orbital velocity, that express blue light; while the equal orbital and equal axial velocity of the descending and ascending spherular nuclei, that express yellow light, is an equilibrium of these counter-excesses at an altitude of medium density and pressure. Taking it as granted that the orbital revolution of the sun's super-nuclei—its primary planets—represents, or, rather, *is*, a projection of its own axial revolution at their respective altitudes, all of which maintain their atmospheric positions by axial rotation, we perceive that the earth's every atmospheric nuclei, from its visible moon down to its empyreal nuclei, must needs repeat the same modes of motion.

The axial friction between the central and super-central nuclei of empyreal spherules is projected externally when centrifugal force is in excess from an excess of condensation. This is clearly illustrated in the excess of heat projected from the earth's surface within the tropics, its excess of superficial friction. *Per contra*, there is a decrease of friction from an excess

of expansion above the altitude where the centrifugal or frictional force of the earth's superficial velocity equals the downward pressure of the superjacent atmosphere.

The height of this altitude of equilibrio between free and latent heat decreases poleward, in the aggregate, in the ratio of the earth's decrease in longitude. Analytically considered, the super-nuclei of the spherules involved increase in orbital, and decrease in axial velocity, below this medium between the extremes of heat and cold, in the ratio those above it decrease in orbital, and increase in axial velocity.

We will next suppose that this medium is the altitude at which nitrogen predominates; and that the equal orbito-axial rotations of the basic or ascending, and super-basic or descending, nuclei of its compound spherules, are, *per se*, the "modes of motion" that express yellow light. From the fact that the tropical belts of comparatively calm air are mediate between the extremes of heat and cold in the polar hemispheres, we assume that the frictional force of the earth's superficial velocity at these latitudes just equals the pressure of the atmosphere above them; and that these belts are the termini of the arcs at which nitrogen predominates. Thence assume that cold or latent heat increases bilaterally thereto, from the lateral coalition of the spherular nuclei involved from decrease in the earth's projectile force, in the degree those above these arcs become coalesced altitudinally from inability to resist super-pressure. Their elastic potency being equipoised by internal pressure upon each other, their external resistance is purely static; cold being the ingress and latency of heated atoms. Being powerless to resist these up-

ward, downward, and bilateral pressures, the atmospheric spherules involved are continuously forced to move in mediate directions thereto; that is, bilaterally upward, and bilaterally downward, or to and upward, from the earth's equator, thence to and from its bipolar boundaries as lower and upper air-currents.

For reasons to be given in tracing the development of animals *in ovo*, we assume that the aqueo-earthly and atmospheric elements are equivalents in quantity and quality archetypally, but on opposite planes of development; the former being on the ovum plane, and the latter on the mature plane: thence assume that the elements constituting the yolk and white strata of animal ova represent respectively these two planes; the innermost or white yolk being an introversion of the outermost albuminous substance on a still more immature plane, in the sense that the maturity of the yellow yolk is mediate between that of the outermost and innermost albuminous portions of the food ovum. That is, on the supposition that the elastic tendencies of the yellow portion, predominantly nitrogenic, are equally centrifugal and centripetal, or saline, compared with the plus centripetal and plus centrifugal tendencies of the outermost and innermost portions, which are assumed to be predominantly hydrogenic and oxygenic, minus and plus condensed, hence the representatives of blue light or alkalinity, and of red light or acidity, with equal quantities of other elements in diametrically opposite stages of mobility or maturation. In perceiving that yellow light is the representative of the female generative principle, because an equilibrium of counter-forces from every direction on a mediate plane of maturity or mobility, we at once perceive that the male or

pro-creative principle must needs be below, as well as above, the *re-creative* principle. That is, the outermost colors above the blue rays,—assumed to be the “modes of motion” by the compound spherular nuclei of the outermost super-aerial gases, predominantly carbonic acid,—red and black, must needs be represented on the innermost plane by the centration of essences fruital to these outermost gases at an equal stage below the meditately mature plane; or, as the ancients interpreted the phenomenon, “the male becomes female.” In the first place we must bear in mind that the darkened or positive hemisphere is always *above* the illumined or negative hemisphere, and that the dark or blue-tinted rays are *above* the light or red-tinted rays; yellow rays being an equipoise of the rays above and below its spectrum altitude. Ascending light rays are simply what priorly descended dark rays become by combination with presently descending dark rays. In a word, we must bear in mind that dark and light atomic motors are the essential germs of form, the inseparable paternal and maternal vital forces overlying and underlying elemental generation. The commingling of these dark and light rays within the earth’s anti-sunward and sunward hemispheres is clearly illustrated in the circulation of blood in the systemic and pulmonary systems. The light blood, ascending through the arterial capillaries, exchanges its negative or acid magneto-electricity for positive or alkaline electro-magnetism within the cutaneous air-cells; while the dark blood, descending through the venous vessels, falsely termed arterial, exchanges its positive or alkaline electro-magnetism for negative or acid magneto-electricity within the bronchial air-cells. These exchanges darken

the whilom arterial blood, and lighten the whilom venous blood. Like exchanges are made between the earth's ascending and descending atmospheric fluids during its axial rotations.

7. In accordance with the law by which a reversion of the spacial condition of gaseous fluids reverses their elastic force and their currental direction, the whilom equatorward lower currents, which, by mutual hemispheric repellence upward, become reversed as poleward upper currents, are again reversed at their maxima of condensation on the axial plane four thousand miles below their whilom equatorial altitude. Not only is their elasticity reversed at their lowest and highest latitudes, and lowest and highest altitudes, but, during their progress poleward, the earth makes a semi-revolution on its axis; so that the empyreal essences of the exploded luminous spherules, ascending within the sunward hemisphere, become the bases of like but counter-elastic essences descending within the anti-sunward hemisphere. The atmosphere is continuously permeated with the descending corpses of its defunct spherules, the combination of whose empyreal essences with those of exploding spherules within the sunward hemisphere is, *per se*, the combustion of these corpses, the flame of which is daylight.

The negativity and positivity of empyreal fluids is simply their tendency to preserve equilibrium. Friction upon one pole of a magnet sets free its surface-essences. This creates a draught, or drawing-in, of an equal quantity from the opposite pole. The anti-earthward hemispheres of all bodies, being normally positive, are rendered more so by friction. The draught is reversed by friction on the earthward hemisphere; the current

being always toward the points of greatest friction. The points of greatest pressure upon the earth and its atmosphere are where the sun's perpendicular dark and light rays are semi-annually reversed, or turned about equatorward from their highest latitudes. As the rays projected from these diagonally paired meridian or solstitial points correlate with the poles of its atmospheric equators, whose extremely condensed atmospheric currents are *per se* the earth-sphere's organs of locomotion, their development as culminations thereof must have been simultaneous with the development of like organs in its animal series: hence we must go back to the advent of such species as resemble a non-rotating sphere. Coiled trilobites are non-locomotives and globular; yet all the possibilities of quadrupedal locomotion were inherent in these ancient fossils, just as were the individual locomotive possibilities of our planet-sphere when its stage of development corresponded with that of its visible moon in the present.

The atmospheric in easement of an objective form is simply an extension of its embryonic sphere of existence to correspond with the increasing range of its dynamic powers during its maturation. The form of its ovum of evolution is just adapted to limit the centrifugal force of its fluids during the maturation of a chick on the ovum plane; the form of its shell being the type of its ever-expanding atmospheric in easement on the mature plane. And just as the yolk-halones and albuminous layers of the food-ovum which are coiled around its non-embodied soul-powers, concentrated within the soul-ovum, termed the "germinal spot" of the embryo chick, are uncoiled by becoming transformed into its ventral and dorsal hemispheres, so

the strata of nutrient compounds coiled around the nucleus of our sphere have gradually become transformed into its ventral and dorsal hemispheres; the blood circling around and through the heart of the former being intertypal of the intermingled aqueous and atmospheric compounds circling around and through the heart of the earth-sphere. Only as we trace the creation of the head in the animal series from a direct depression earthward up to and above horizontality to its direct elevation sunward, can we perceive that these changes represent like changes in the position of the earth-sphere as regards the nucleus of its proximate sphere of subsistence. Thence, by tracing the depression of their feet from their position in cephalopoda down to and below horizontality to perpendicular stepping, we readily perceive that all limb-movements are fulcrated on the ventral hemisphere: hence the earth's ventral or negative hemisphere has always been correlated with the sun's negative or centrifugal rays. As the expansive force of the earth's substance increases in the exact ratio the condensive force of that of its atmosphere increases from the dividing line between their equators of contradistinct rotation,—the range of disparity between which is twenty-three degrees and a half,—the angles of combination between the essences descending and ascending therefrom are inconceivably numerous. And as every spherule of each element is a contradistinct form of force within which the altitudinal and latitudinal tendencies of both its parent elements inheres intactly, the aggregate tendencies of culminate or organic forms are complexed in accordance with their altitudinal and latitudinal positions as such. Theoretically every spherule has its nuclear surface,

and its nuclear and atmospheric equators, with their respective maxima and minima of axial foreitiveness.

The fact that blocks of magnetic iron, whether naturally or artificially "charged," are surrounded by systems of electric and magnetic currents, each having its magnetic equator and its boreal and austral poles, which correspond with the dip of the magnetic needle at its geographical loality, is conelusive evidence that the earth's electro-magnetic and magneto-electric currents are repeated on the surface of all its forms. The horseshoe magnet is no less a system of currents before than after its poles are united by an armature. But, in the latter case, it is, in form, a section of a sphere. Regarding the armature as the sunward hemisphere, its currents are duplicated. Its equator represents a section of the earth's equator nearest the sun, that of the are a section directly opposite. Henee there are lower currents tending from either pole equatorward, both on the armature and on the are, which, on meeting at their equators, are mutually reflected upward therefrom, thence, modified by super-pressure, return to the poles as upper currents; thus on, in continuous alternation, like the earth's lower and upper air-currents. The intensity is increased, because the additional "breaks" are *de facto* additional currents.

The fact that the prehensile capacity of a magnet is increased and rendered permanent by adding the armature, thereby completing the circle, so that it is sufficient to sustain many times its own weight, is evidence that its movements are functional, that it actually projects essences inherently motile and prehensile into the substances it sustains. After such an array of self-testimony by magnets corroborated by the formation

of crystals, which necessarily involves contradistinct currental systems, it is gratuitous to assume that metallic and crystallic forms are organized, and, by parity of reasoning, every spherule of each. Every substance grasped by the hand is penetrated by its lines of radial essences which converge within it; while lines of like essences, radiating from it, penetrate the hand divergently. In order to maintain its globular form, the earth's nutrient essences must be proportional to those radiated from the same areas during equal periods of time. This is actualized in its superficial velocity, which decreases in the ratio of its decrease in longitude, the ratio of its aggregate decrease in heat.

If, as these facts indicate, the rapidity of their ingress and egress lessens in the degree the decrease in velocity of the areas where they become staticised and volatilized lessens, then increasing heat is the increasing velocity of elemental nuclei, and increasing cold their decrease in axial force; which is, *per se*, the increasing and decreasing distances to which their empyreal atmospheric nuclei become projected, whose increasing and decreasing mobility and axial velocity is, in turn, increasing and decreasing rays of colored light when decomposed. This illustrates our ideal of the nutrient relations between forms on plus and minus mature planes of development; the essences involved being simply moulded into centre-tending and ex-centre-tending germs within matrices functionally male and female.

8.- If, as assumed, causes and effects are inseparable in the sense that causes are the doings of the substance of things under its various modifications as their constituent or nutritent essences, and effects are what is done by these nutritent essences, when, after being

moulded into like structural proclivities by their structural proclivities respectively, they are outborn therefrom as fruital essences or fruital forms of substance, we must needs study this universal law abstractly, otherwise we cannot designate special causes and their immediate effects. By regarding our sun, the nucleus of the solar sphere, as relatively female, and the planets, its super-nuclei, as male, we at once perceive their counterpart functions, and perceive, that, in like manner as the planets increase their orbital range in the order of their increase in altitude, so must the super-nuclei of their atmospheric spherules increase their orbital range in the order of their increase in distance above their central nuclei or sunules. This, because the planets are constituted of and nourished by the centrifugal essences of their sun, and like essences fruital to its sun concentrated from the periphery of the solar sphere to their respective altitudes within it; their atmospheric essences being the same substance *re-reflected* as their fruitage.

Thence regarding the solar sphere, as a whole, as one of the atmospheric nuclei of its sun, we perceive that it must needs be constituted of and nourished by the centrifugal essences of its sun, and like essences fruital to or reflected from the sun of a correspondingly more embracing sphere concentrated from the periphery of the sphere within which the solar sphere is gestated to its altitude therein, thus on back to the essences reflected or centrifugated from the prime nucleus, and those centripetated from the primordial atmosphere of which all things are constituted and eternally nourished; increasing complexity in movements being due to the re-reflections of the substance of each.

As there must needs be a definite circumferential limit to terrestrial gravity, as well as a centre, the same is necessarily true of its every spherule, and of every form they constitute. The circulating fluids of each organism are necessarily combinations of the ultimates of gravital force that constitute its prime centripetal and centrifugal currents.

The interspaces between the cells of an embryonic organism are the first channels of circulation traceable. Into these the nascent cells radiate their ex-nutrient essences, and from them absorb their nutrient essences, the less mature cells needing the essences the more mature cells need to part with, and *vice versa*. The radiated essences are ex-centre-tending as regards the parent cells, but centre-tending as regards the cells they nourish. These exchanges of counter-forcitive germs render opposing cells static counterparts. This mutual impregnation is between the ultimate spherules of form, and is necessarily universal between those of all contiguous or commensal forms.

These analogically demonstrated facts are the ground of our assumption that the counter-tending empyreal essences by which all forms are nourished combine within them as empyreal spherules, and that the vascular systems of living organisms are aggregations of adherent empyreal spherules *in ovo*, being fruital to their circulating media, which, in turn, are aggregations of the essential germs fruital to the entirety of forms within their native strata, upon which all alike subsist. As the sun's rays, when impinging upon the periphery of the earth's atmosphere, are necessarily prolonged from either side of their line of perpendicularity, the plane of the earth's equator of *intr-*

solar magnetism, to the points of non-contact with the earth north and south, it is readily perceived, that, in becoming converged upon its surface, they are plus condensed in the exact order and degree they were priorly plus expanded by their prolonged divergence. And as the colored rays of the solar spectrum vibrate with increasing velocity in the order and ratio their divergence is prolonged beyond the line of perpendicularity, just as the primary planets, the glintings of whose illumined hemispheres they are assumed to repeat, increase their axial rotations in the order their orbital range is prolonged, we assume that *magnetic force* is the tendency of the nuclei of empyreal spherules, staticised as form, *to resume the same orbito-axial rotations as those inherent in their super-terrestrial parent spherules*. This, because these latter spherules are constituted of the whilom surface-essences of the sun and its planets or super-suns, hence *inherit* the same proportional rotivity as the points whence they were radiated.

As their consecutively later essences become concentrated upon the planets and their products, whence they are continuously outborn as more and mere refined and complex spherules, they continuously retain and express every priorly attained tendency, whatever the form to which they become constituent. And when outborn from these planet-spheres, and their essentially dynamic essences have become re-embodied atomically, by super-planetary essences nucleated as ova, they diverge therefrom with the same force as that attained prior to their focalization and dispersion, on the same principle that heat and light retain the same intensity on the same plane of divergence, regardless of refractions, however numerous. The power gained by con-

centration to and ex-centration from new centres of motion, is, *per se*, power to move in new directions by the substance involved; which power or elastic tendency is eternally innate and efficient, whether attained by the sentient agents within the sensor and motor nerves of general sense, by whose contractions and expansions, or respirations, the physical body is moved as its needs demand, or by the agents of special sense, through whose combined abstractions from the objective universe, and their reflection as concrete ideals, the mind's subjective universe is created.

The systems of circulation in each form necessarily accorded with the active and re-active force needed at the especial altitude, latitude, and longitude within the earth-sphere where it became incipient as a new type of force. And its differentiations in form and function as a form of force must have been in accordance with the earth's increasing complexity consequent upon its outgrowth into higher altitudes, and broader latitudes and longitudes within the solar sphere. As the prime circulating media of all forms *in embryo* are empyreal essences conducted through fluid, semi-fluid, and molluscan substances, all purely fibrous, prior to the development of their bony skeletons, we assume that the earth's prime surface-elements were empyreal, which became aggregated in fluid, semi-fluid, and molluscan forms, prior to the development of crustacea, which must have been identical, because contemporaneous, with the development of the earth's solid incrustations, the sum of their solid outer skeletons. Accepting this as truthful, we recognize the co-operation of the neural or empyreal fluids, which are plus condensed within, and minus condensed without, the solid skeleton

of the more complex animal forms, by means of which they perform more complicated movements as repetitions of the combined operation of the electric and magnetic currents below and above the earth's solid surface, and within and without crustacea at the time of their advent.

Then, as now, the earth's rays on the plane of its equator were the most motile, hence constituted its spinal axis, bilateral to which those above its surface were forced poleward by superjacent pressure in accordance with its decrease in longitude, and increase in axial rotation. This increase in rotation, the result of decrease in super-pressure, conditioned the centration of its bilateral rays in fuleral lines prototypal of the neuro-skeleton, thence of the dermal-skeleton, of its more and more complex animal forms.

Although the spinal axis is the dividing line between the bi-lateral sensor-motor nerves, yet whether its position be horizontal, or erect, or at any intermediate angle, this axis, in every animal, is forced alternately to the right and left of its line of direct advance during locomotion. This motion is assumed to be intertypal of the daily alternations of the earth's equator to the right and left, or south and north, of its line of direct orbital advance consequent upon the plus and minus pressure of the sun's perpendicular and its most oblique inter-tropic rays in continuous alternation; its annual oscillation south and north of the plane of its equator being the result of its three hundred and sixty-five and one-fourth daily oscillations. In recognizing the planes of these circles of plus and minus pressure upon the earth's atmosphere as its atmospheric equators, we assume that every self-moving animal has correspond-

ing atmospheric equators, whose alternate plus and minus pressure upon its nuclear equator or axis of locomotion conditions its steppings; even such animals as advance by contracting and expanding non-ciliated pedal muscles, or their internal representatives.

It is solely through the efficiency of their own counter-equivalents of nuclear and atmospheric or minus and plus mature elements, that tangible forms attain and maintain their individuality. The same is necessarily the *modus operandi* of the earth-sphere's evolution from its incipiency as a needed organ of the solar sphere.

It has always outgrown within an area just adapted to limit its continuously-increasing motive powers, thereby forcing into conjugal co-operation or organization the essences forced within its gravital limits by external pressure from opposite latitudinal and altitudinal directions.

The *form* of each species, the advent of which was in the order of its needed efficiency, was determined by the *form* of the area of space that bounded its gravital powers, and within which it was forced to grow. Although we cannot see the form of their atmospheres, yet each must needs repeat the earth-sphere's predominant modes of moving at the era when the needed efficiency of its structural proclivities conditioned its incipiency. As types or future actualities, *all forms are indigenous to the altitudes and latitudes, or areas of space where they become existent as actualities.* In an inconceivably distant past, when the earth's surface-stratum was thousands of miles below its present status within the earth-sphere, and millions of miles below its present status within the solar sphere, and correspondingly

nearer the focus of infinite gravity, its present surface-forms were necessarily existent as types or future possibilities at the very localities where their actual forms are now existing. This, because space, as the measure of form, is an unchangeable fixity; while time, as the measure of motion, is ceaseless change. In the out-growth of every thing around us we perceive that the form of each is a fixed measure of space, whatever its transformations, and that certain definite periods of time are requisite in bringing together the basic and super-basic substance of growth; and also perceive that growth is the simultaneous increase in spacial extension of every department of a form.

The assumption that the earth increases in size is based upon the fact that its present surface-forms have grown *above* the defunct nuclear organisms of past ages; these, in turn, having grown *above* the defunct nuclear organisms of prior-past ages, thus on and on, in virtue of the concentration of equal quantities of essential substance from above and from below its medium altitude. The predominance of denser atmospheric elements during their formation, especially revealed in the carboniferous era, is self-evidence, not only of their lesser distance from the focus of terrestrial gravity, but of the earth's lesser distance from the focus of solar gravity. It must be borne in mind that only the nuclear organisms of the earth's parasitic products are within the range of sense-perception. This accounts for the non-recognition of the *atmospheric origin* of the prime and nutrient forces involved in their organization, whose organic powers are transmitted to the nuclear organisms of their respective offspring *in embryo*; the constituents of which are, *per se*, the atmospheric essences fruital to

every element of the parental organisms condensed as their specific fruitage.

When the earth's atmospheric elements became sufficiently mobile, or free to organize in more and more complex structures, each more complex species was necessarily an involution of the organic or mechanical powers of every preceding species: hence the repetition, *seriatim*, of their organic powers within the new or culminating species on the inner plane of life, as its inter-forms or internal organs, necessitated the continuous repetition of their specific structures on the outer plane of life as the earth-sphere's inter-forms or internal organs, each of which became differentiated in accordance with the earth's increase in spacial freedom.

Complexity in machinery or in living structures is a combination of mechanical fulcra or organs provisional to movements in directions corresponding in number with the number of their mediate bearings. The modes of moving by animal forms are complexed *in the complexity* of the directive tendencies of the afferent vessels through which their nutrient essences are assimilated, the mobility of each being determined by the mobility of the elements upon whose germs it subsists. The sole organs of imbibition, through which its nutriment is filtrated, are the pores of the outer and inner layers of its vascular membranes, primarily the outer and inner layers of the "germinal membrane." *In embryo* all forms are alike cellular, their prime nutrient essences being inducted through the surface of the "germinal vesicle," which converge from every direction toward its centre.

The first differentiation from this type is the projection of certain portions of the surface of a cellular

form. This materially changes the angles of combination between the comparatively plus and minus condensed essences that are becoming forced in centreward in lines perpendicular to the pores they respectively enter. Another differentiation is the folding in of the outer surface around granules more or less dense, thereby forming an embryo stomach. When these become digested by the concentrated action of the essences received through the outer pores, they enter through the pores of this stomach from a new direction, each tending from within outward, diametrically opposite to the direction of the former. The angles at which these basic essences combine with the super-basic essences, by becoming atmosphered and permeated by them, are such as to cause their rotation, more or less circular, around the centre of the structure, just as the granules of a single cell are seen to rotate around its centre.

A still greater differentiation in form and function is effected by the folding in of the entire lower surface, so as to form an alimentary canal, with an oral and an anal opening,—a provision for the storage of its basic food, or soil, which higher animals “carry about with them during its digestion; every particle of which is as distinct from the structure proper as the water or air that bathes its surface.”

When the earth’s development conditioned the needed existence of air-breathing animals within its aqueous and aerial strata, the formation of gills and lungs for the condensation of acrialized water and moistened air, in accordance with their respective needs, was effected *by the pressing in of the needed essences on the outer surface of differentiating types at the points of greatest need, always the least resistant or most relaxed, until*

the foldings caused by this pressure became the organs needed.

This change in type was the addition of a new stratum to the aqueo-earthly and super-aerial strata of lower types, the advent of which was necessarily contemporaneous with the development of the earth's aerial stratum. The structure and function of animals possessing only a stomach with a single opening, clearly indicate that their pre-specific types became incipient during the incipiency of the earth's aqueous stratum. The structure and functions of those possessing, in addition, an alimentary canal, with a water-vascular system and rudimentary gills, are the earlier prophecies of an aerial condition of existence; while those possessing, in addition to the portal, a true sanguiferous system, with true gills and rudimentary lungs, are later prophecies of the higher life, being evidently contemporaneous with the incipiency of the earth's outgrowth from its own aqueous stratum. The earth's amœbal projections must have extended above its surface-waters before its atmospheric essences could have become absorbed by, and concentrated within, its consecutively more interior strata, thereby rendering them correspondingly expansive. Just as the essences of surface-water are the bases of meteoric water, so the essences of air, condensed within the earth's interior strata, are the bases of super-surface air. This assumption is based upon the perception that the elements of each form are indigenous, as elements, to the stratum within which it becomes incipient. But, as a complexity of different compounds, the essences involved are fruitful to lower and higher strata, which, as essential types, inherit the counter-sexual tendencies, or the minus and plus

maturity of *their* respective parent forms. Being a compound of its more complex, but less mature, basic or female germs, and of the less complex, but more mature, super-basic or male germs, in the sense of their being moulded into these counter-conditions as the pre-specific fruitage of its female and male parents respectively, the essential tendencies of the form are intermediate. Only as we perceive that the condensation of atmospheric essences, as *ingrowth*, is the sole condition of *outgrowth*, can we perceive the mission of air-breathing organs, or perceive that the development of aerial elements, compounds, and complex air-breathing forms, *was, per se, the development of the earth's aerial stratum.*

If the earth-sphere transmits to its inter-forms, that is, repeats within itself, its own correlated forms of moving, which have been transmitted to it proximately through the forms that make up the strata above and below its altitude within the solar sphere, then the analogy between its modes of moving and those expressed by its inter-forms as their structural proclivities will be recognizable. But, in order to recognize this analogy, we must bear in mind that the internal organs, or machinery of every culminating sphere or organism, is the sum of those of *its* internal spheres, or internal organs, whose ultimate internal organs or machinery is, in turn, the sum of *their* elemental spherules.

As the popular belief that the earth's interior is a homogeneous mass of liquid fire is altogether dissimilar to the interior condition of its surface-forms, we purpose to show conclusively that the assumed increase of heat centreward, upon which this belief is founded, is purely an increase in the ability of its elements to

re-expand in the ratio the empyreal fluids involved are condensed. If the aerial and super-aerial gases within the earth's mineral formations, whose increase in density is evidently in the same ratio and direction as those within its ocean-waters, which, as is well known, increase in frigidity or latent heat in the ratio of increasing depth, could be as completely isolated from admixture with those above its surface, there would be an equal increase in cold. Analogically regarded, the centration of atmospheric gases through the agency of water, and their ex-centration through vegetable and mineral formations to its mountain-tops, is prototypal of the centration of like gases through the afferent lymphatics, and their ex-centration through the efferent lymphatics and "thoracic duct" in animal organisms. Volcanic eruptions and earthquakes are comparatively superficial, the heat and flame evolved being evidently the result of the sudden condensation of like gases in a volatile state when brought into combination and equal diffusion with the highly condensed sub-surface aerial and super-aerial gases. They are chemical explosions on a grand scale, compared with the explosive combination of like gases diffused within the earth's darkened hemisphere when brought into opposition with the sun's direct rays.

The increase of heat at increasing depths is the liberation of thermal essences increasingly condensed. It is the same force as that by which subterraneous liquids and gases are projected through artesian wells.

The fact that latent heat or chemic force, which, in the aggregate, increases in a like ratio bilateral to the earth's equator, and above and below its surface, is rendered alternately plus and minus by its orbital and

axial rotations, proves conclusively that the prime generative powers of nature are purely empyreal, and that their eonjugal co-operation consists in the eentripetation and centrifugation of equal quantities of empyreal germs above and below and bilateral to a mediate degree of eondensation. As these eentripetal and eentrifugal germs meet, and combine their opposite clastic tendencies at every possible point, alike within as without complex forms, they are the prime bases and superbases of form,—its heat and light, or inner and outer life on the essential plane.

9. If, as is universally assumed, the human species is a eulmination of the meehanism represented in the struetural proclivities of all less complex species, their organs, in the order of their advent, must needs be repeated in the mechanism of the human organism.

Starting with the fundamental principle that what a thing is in its ultimate synthesis, that it must be in its ultimate analysis, and *vice versa*, we will trace the development of its organs from the lowest plane, from its “primordial vesicle,”—a simple stomach. This vesicle beeomes visible on what is termed the “Mulberry Mass,”—the segmented white or germ yolk interior to the yellow yolk. As this stomach grows by absorbing the substance of the myriad vesicles into which the prime germ yolk has beeome divided, which combines within it with like substance simultaneously absorbed from above it, we assume, on the principle of repetition, that the vesicles absorbed are *de facto* representatives in form and function of the prime stomachs, or “primordial vesicles,” of every pre-eeding species. And, on the same principle, we assume that the endosmosing and exosmosing vessels, through

whose agency the nuclear and atmospheric departments of its specific stomach are built up from the nuclear and atmospheric germs that constitute these *pre-specific* stomachs, which are complications of theirs, are structural and functional representatives of the male and female protozoa developed within the generative organs of the two sexes of the human species as their *pre-specific offspring*. Thence we assume, on the same principle, that these prime portals between its nuclear and atmospheric departments remain intact, as such, during the entire development of the organism; and that its development consists in the interposition of the vascular systems of every preceding species, *seriatim* from the lowest to the most complex *between these outermost portals and their respective nuclei*. For example: the different sections interposed between the stomach and rectum represent the structures of the prime alimentary of each succeeding species; the rectum or latest being that of the human alimentary on its lowest embryonic plane of development. In like manner the successive sections of the blood-vessels, from their outermost portals, projections of those pertaining to the prime stomach, to the hearts, represent the sanguiferous systems *in embryo* of each more complex air-breathing species; the sections nearest the hearts being the structural representatives of the one vein and one artery of the human embryo prior to their doubling over as the right and left hearts, in the sense, that, in the development of these hearts, the entire sanguiferous system of the human organism, including its bronchial, its nervous, and lymphatic systems, are repeated as their blood-vessels, their *vasa vasorum*, their bronchia, nerves, and lymphatics.

The consecutively more outer sections represent the embryonic state of the vascular systems of consecutively less complex and earlier species, in the sense that their entire vascular systems in their maturing progress are repeated in their respective sections of the vascular systems of the human organism in *its* maturing progress.

And, on the same principle, we assume that the various corpuscles, free and fixed, that become developed within these sections between their surface-portals and their central nuclei, are miniature representatives of the various species whose mechanical powers culminate in that which the section represents in the human organism. And also assume that the surface-portals of these sections, like those on the surface of the organism, are introverted and extroverted cilia, functionally male and female, hence are the matrices through whose functions the essential germs that constitute the male and female protozoa of the various species that culminate as the sectional species respectively are moulded *in transitu*, and which combine as their specific offspring. In like manner, the germs of the specific offspring of the various sections of all the different systems of circulation in each human organism combine within its organs of generation as its pre-specific offspring; those of the two sexes becoming, in turn, combined as their common offspring on the embryonic plane of their specific development. For reasons to be given in detail further on, we assume, that, prior to the earth's axial rotation and the simultaneous development of its aerial stratum and of air-breathing animals, there were no distinct male organisms; but that, in like manner as its super-aerial stratum was directly superposed upon the

aquo-earthly stratum in such a manner that they were *de facto* one stratum, so its animal intertypes were bisexual forms; the more fully developed female organs being within the lower and denser portion, and the less fully developed male organs within the higher and rarer portion.

As its rotation increased by the gradual interposition of its aerial stratum between the two layers of the former stratum, its counter-tending rays became represented in the counter-tending blood within the arteries and veins of its air-breathing animals, between the embryonic representatives of the nerves and lymphatics, invisible and visible, of pre-existing species. Hence our assumption, that, during the circulation of the blood, the counter-tending or female and male germs, which become developed within correlative sections of the arteries and veins, combine as their common offspring, thereby becoming the substitutes of the parent corpuscles on the intermediate plane of maturity when their ripened essential organisms shall have ascended to the atmospheric or non-objective plane and their nuclear organisms, the sum of their elemental ova, have descended to the ovum plane.

This assumption is based upon the perception, that although the male and female principles of generation are of necessity efficient in lymphatic fluids, yet their corpuscles, like the purely water-breathing animals they represent, are, like them, bi-sexual. Not until we come to partial air-breathers and amphibia, assumed to be prototypes of renal and chyle corpuscles, do we find distinct male organisms.

In these classes we find, not only the various pupal transformations by which the same animal attains more

and more complex embodiments, but the various genetic changes, by which the offspring of apparently different species become the parents of a more complex species.

As the conjugation of quantitative equivalents of essential substance tending toward each other with equal force from diametrically opposite directions, and which become inseparably unitized as the ultimate elements of form by the mutual inter-penetration and interlocking of their rays of nutrient and ex-nutrient essences, is omnipresent, and as these elements occupy *in transitu* every interpoint of space within the spheres of gravity or forms of force they constitute within the sphere of infinite gravity, their elastic potencies are efficient in every possible direction; and, as each and all move ever and forever in the directions their mouldings determine, they represent every degree of mobility or maturity possible to the spheres of gravity and forms of force they become.

This unceasable movement toward a never attainable equilibrium by the purely essential elements of form is *per se* the unceasable life of nature's essential organism, which is ever and forever maintained by their unceasable transposition toward and from the innermost and outermost of the sphere of Infinite Being.

10. Now, taking it as granted that combination is in virtue of disparity in mobility or maturity, and that, in the separable combination of the differently moulded elements of form, like the inseparable unitization of their ultimate essences, the denser or less mature are atmosphered by the rarer or plus mature, the common offspring of two different elements must needs be on an intermediate plane of maturity. For example, a spher-

ule of carbonic acid is one spherule of carbon and one of oxygen, arranged in the order of their expansibility and condensability. The carbonic spherule, being the denser, is more expansive: hence its nuclear equivalent is *below* that of the oxygenic spherule, and its atmospheric equivalent is *above* the atmosphere of the oxygenic spherule. Their nuclear and atmospheric essences combine as their common offspring between their common nucleus and their common atmosphere. The growth of these embryo spherules necessitates the separation of the nuclear department of the parent spherules from the atmospheric department, for the reason that the former is the sum of the fertilized or common ova of the latter combined as its embodiment during its growth up to a higher plane of maturity. The same is true as regards the arrangement of the nuclear and atmospheric strata of a spherule of a ternary or a quaternary compound. The same is necessarily true as regards the arrangement of the strata of compounds that constitute the nucleus and atmosphere of a single sphere and of a compound sphere. For example, the strata of compounds that make up the earth-sphere and the solar sphere are of necessity arranged in the order of their specific gravity from their respective centres to the circumferential range of their centripetal and centrifugal forces; that is, on the supposition that differences in the qualities or elastic potencies of different elements are purely differences in *inherited mobility* and in *freedom to move*, the substance of all alike being intrinsically homogeneous.

Only as we perceive that each animal builds up its nuclear and atmospheric organisms on its different planes of maturation by its own intrinsic elastic or

vital potencies and its inherited tendencies, can we understand the why and the how of their somatic separation. The pre-specific male and female or plus and minus mature essential germs that become the soul-germs of an air-breathing animal *in ovo* on the specific plane, in building up the amniotic membrane and its included amniotic water, build up its organism on the aqueous plane of maturity from the essences endosmosed through its outer and inner folds. Then, in building up the allantoin membrane,—its bronchio-sanguiferous system, an intertype of the earth's aerial stratum, between the outer and inner folds of the amniotic membrane,—it builds up its organism on the aerial plane of maturity.

The absorbents and excretents of an animal *in utero* are at first only in communication with the generative organs, thence with the alimentary and lymphatic organs, and, lastly, with those of the sanguiferous system of the maternal organism, and with the nerves of each and all respectively:

On the principle of repetition, we take it as granted that the amniotic and allantion membranes of the placenta, through which the embryo comes into nutrient relations with the inner and outer lymphatics and the arterial and venous systems of the maternal organism, are intertypes of the earth's lower and higher strata, between which, and in virtue of whose counter-tending germs that combine within it, the maternal organism outgrew on the mature plane, in like manner as the embryo outgrows on the immature plane. As the fluids absorbed through it are homologous with the nutrient fluids in meroblastic ova, the placenta is an intermediate world built up by the embryo from the fluids transmitted through the maternal organism, in like

manner as larvæ build up their pupal incasements, *their* intermediate worlds, from their surrounding fluids.

As the functions of these worlds consist in so limiting the potencies of the nutrient fluids involved, that they become the *form* of their respective creators, they are simply the matrices or moulds within which the creative or soul-powers of each essential organism, all of which are purely *forms of force*, build up more and more mature or mobile organisms from more and more highly comminuted substance, which are *per se* more and more mature worlds, or planes of maturement.

11. Only as we perceive that each world and each organism has its nuclear and atmospheric equivalents of counter-tending elements, the former being on the pre-natal or female plane of development, while the latter are on the post-natal or male plane, can we perceive the wherefore that the substance of the pre-natal organisms of all species are moulded within the organism of the female parent. The substance of meroblastic ova are the embryo germs of every element of the maternal organism, all of which inherit every tendency of their respective parent elements, hence possess the affinities and repellencies by virtue of which they combine as a like organism on the female plane of development; the protozoa of males being intertypes of those so abundantly developed in spring-time rain and snow. Holoblastic ova are simply nucleations of the germs fruital to the elements of the generative organs of the female parent. When organized on the generative stage, the viviparous embryo, in virtue of its more subtle and more complex creative powers, is capacitated to build up its intermediate world, its male matrice, on its female stage of maturement simultaneous with the

building up of its inter-placental organism, a more inner world, on the female stage of its maturement, within which its essential organism becomes fitted to exist during its maturement on the male stage within the earth's atmosphere. The ovum and larval stages of insects are female and male: so are their pupal and imago stages. Viviparous animals pass through all these stages during their transformations on the pre-specific and specific ovum planes, and on the placental and atmospheric planes.

Analytically regarded, the placenta is the male or atmospheric department of the inter-placental organism on its female stage, or nuclear plane of development.

Directly it is born into the earth's atmosphere, the male department of the earth-sphere, it becomes atmosphered by substance correspondingly plus mature or plus mobile. When born on a plane of being whose elements are correspondingly more comminuted and more mobile, the essential organism of the human ego must needs separate itself from the less refined and less mobile organism constituted of the germs *in ovo* of a lower world's elements through which it has climbed to a higher world by building it up of the essences of the elements that constitute the higher world.

The somatic death or dissolution of its pre-natal and post-natal worlds of animate forms is not only indispensable to its higher births, but it is equally indispensable to the birth of their respective embryo elements from the ovum plane of elemental being into the mature, thence into the post-mature or super-sensuous plane to which their essentially organized counterparts have ascended. This, because life is a unity and an endless continuity.

12. The unceasable aggregation of elemental germs as compounds and complex forms is endlessly correlated with the outbirth of the former as the fruitage of the latter. The growth of forms is solely the growth of their elements. The growth of clements is simply the combination of the germs of parent elements plus and minus mature or mobile from minus and plus condensation *between* their common nucleus and common atmosphere. The growth of their common offspring is the combination of their nuclear and atmospheric germs *between* their nuclei and atmospheres, thus on *ad infinitum*; the substance involved being the germs of external atmospheric elements forced therein through their common atmosphere by external atmospheric pressure. As is readily seen, the growth of the more and more internal elemental germs is the growth of the compound or complex form they constitute, in virtue of their continuous duplication horizontally, thence altitudinally, in the ratio of increase in space from the centre of their common sphere of gravity. The same principles are necessarily involved in the growth of our sphere by the interposition of new strata of elements between its nucleus and its atmosphere, as also in the interposition of new strata of elements between the prime nuclei of its animate forms and their atmospheres. The inherited mobility of the external germs forced through the earth's atmosphere to its surface from the sunward and anti-sunward halves of its periphery is the mobility of the solar elements at these different distances from the centre of solar gravity, millions of miles apart, equatorially reckoned. When those from diametrically opposite points are combined as the earth's surface compounds, their inherited counter-tendencies

render them static, or comparatively so, as is the case with earthy and aqueous compounds. Their only means of ascent as compounds or complex forms is the forcing in of germs fruital to higher and more mobile elements *between* their common nucleus and common atmosphere. This is effected during the axial revolution or rolling over of the earth's entire atmosphere as the culmination of the earth's 365½ axial revolutions.

13. During the annual revolution of the earth-sphere as a whole, all its differently combined strata of elements are subjected to higher and lower altitudes, and lower and higher latitudes of the solar sphere during equal periods of time, in virtue of which every spherule of each element inhales and exhales equal quantities of plus and minus mobile elemental germs, all of which were priorly super-terrestrial. But, owing to the decrease in space earthward, the germs inhaled, like the elements they nourish, decrease in mobility in the aggregate in the ratio their linear rays become condensed, their expansibility being increased correspondingly. This results in the evolution of new species of elements, which combine as new species of compounds and complex forms; in a word, results in the formation of a new world between its nucleus and its atmosphere in consequence of and simultaneous with the development of like formations between the nuclei and atmospheres of its more and more embracing parent spheres, all of which are being brought into nutrient relations with more and more mobile or mature elements in virtue of their simultaneous increase in spaciality. These perceptions are the bases of the assumption that all forms of force outgrow to the consecutively higher altitudes whence the substance of their specific ele-

ments descended by moulding *in transitu* their fruital essences as the constituent essences of their elemental offspring, regardless of the evolution of specific offspring; and also the basis of the correlative assumption that the generation of each more complex species is effected by the growing of the embryonic vascular systems of every preceding species in the order of their later advent as the more and more interior strata and sections of the vascular systems of the latest or culminating species; and also of the assumption, that in like manner as the genesis of complex forms necessitates the plus and minus condensation of quantitative equivalents of elemental germs as centre-tending and ex-centre-tending or male and female forces, so the development of their essential organisms on the pre-natal or female stage of maturement on the, to us, objective plane, necessitates their gestation within a world of forms on the minus mature or female stage of their maturement.

This necessitates the moulding *in transitu* of the elemental germs involved within the intermediately minus and plus spacial generative organs of the female parent. These pre-natal worlds consist of the denser and rarer vascular portions of the placenta of viviparous species, of the yolk and white of the ovum of oviparous species, or of their representatives in intermediate and lower species.

14. The evolution of man's pre-natal or placental world being intertypal of the evolution of his post-natal world — our world — on *its* pre-natal stage of maturement, in order to mould the elastic potencies of the substance of its latest or culminate species, all its interforms, in the order of their advent, must needs

begin and grow simultaneous with the beginning and growing of the consecutively more interior strata and sections of his purely vascular organism. The post-natal maturement of man's organism is the maturement of the miniature representatives of the various species whose structural proclivities it represents. His organism, like his pre-natal or placental world, is a matrice between his innermost world of subjected forms and the, to him, future world of forms parental thereto. These latter assumptions are based upon the perception that the substance of our world's most complex species—the human—is fruitful to the elements of the successively higher worlds or stratifications of the earth's atmosphere, each of which is constituted of strata relatively plus and minus mobile, functionally male and female; and that the development of man's organism within its lower and denser strata is the female or initial stage preparatory to its complete maturement within the higher and rarer or male strata. Hence the somatic death of the essential organism's matrice, when matured within the lower or female strata of our stratification,—the aqueo-earthly and aerial,—is homologous with the somatic death of its matrice when matured within its pre-aerial strata, whose forms are initiatory or female compared with those more fully developed on the aerial plane. This is clearly illustrated in the somatic dissolution of the pupal incasement of air-breathing insects when they are outborn into higher atmospheric strata, and of that of water-breathing larvae, when outborn into the aerial stratum.

This view presupposes that the interposition of the earth-sphere's prime aerial stratum between the denser and rarer or female and male departments of its prime

aqueous stratum was coeval with the interposition of an aerial stratum between the denser and rarer departments of the sun's *then* latest stratification *then* predominantly aqueous; and that the outbirth of the earth-sphere, *then* the solar sphere's latest specific offspring, into this aerial stratum, was coeval with the outbirth of its own prime water-breathing forms into its aerial stratum, and the genesis of corresponding air-breathing species by the interposition of an aerial stratum or sanguiferous system between the denser and rarer water-vascular systems inherited from their water-breathing ancestors. That is, on the supposition that like strata were simultaneously interposed between the denser and rarer strata of elements predominantly aqueous, of like nascent stratifications above the nucleus of each more embracing sphere, in consequence of the outgrowth of each and all into nutrient relations with higher and more mobile strata of elements, the interposed being always on an intermediate plane, and on the supposition that the nutrient germs descending from these higher altitudes, which become the super-bases of the elements that constitute the compounds and complex forms indigenous to intermediate altitudes by combination with like germs ascending from consecutively lower altitudes, become corresponding forms within each strata, in virtue of being moulded *in transitu* into the tendencies of each form to which they are ex-nutrient or fruital. But inasmuch as the mobility of those indigenous to each intermediate stratum, or stratification, or sphere, is a combination of the relatively minus and plus mobility of their female and male stages of maturement, those of each differ from those of every other in form and in function *ad infinitum*.

15. It has been suggested that the soul of man, his essential organism, in being a complexity of the essential organisms in miniature of the universe of external forms whose elemental germs have become integral parts thereof, is the ultimate sublimation of substance. But this suggestion is untenable from the fact that formation is essentially progressive. For example, the human form, on its lowest plane, is a single vesicle; its only modes of motion being toward and from a single centre. At its first division it duplicates these motive tendencies, thence duplicates them at every successive division, until they are utterly innumerable. The same is necessarily true of every additional organ, up to those of sight and sound, whose subdivisions, or miniature representatives of those of every form below its status of complexity on its stage of maturation, are more innumerable, and correspondingly more refined.

This shows conclusively that the ultimate sublimation of substance is as unattainable as its ultimate extension; and that its inter-penetration within forms of force, as the bases of modes of moving in an increasing number of directions, is equally limitless.

No facts in geological science are more clearly evident than the periodical dissolution or somatic death of the entire forms of life on the earth's surface, and the periodical predominance of different elemental combinations. And it is equally evident that the predominance of carbon and oxygen variously combined immediately preceded the predominance of oxygen and hydrogen combined as surface-water.

The well-known fact that the earth's stratum of surface-water has its atmospheric counterpart of aqueous elements above the stratum of oxygen and nitrogen

combined as air is ample evidence that its lower stratum of carbon and oxygen, below and intermingled with which is every other known element, has its atmospheric counterpart above the stratum of meteoric water.

As neither water-breathing nor air-breathing animals can survive upon other than their own elements, neither of which can breathe carbonic acid gas, it is evident that the nuclear stratum, the sum of its interforms, to which carbonic acid gas was atmospheric, became organically defunct from inability to breathe the aqueous elements interposed between it and its native atmosphere. Having completed its cycle on the nuclear or female stage of maturement, its atmosphere, the sum of the atmospheres or essential organisms of its interforms, ascended as a whole to the atmospheric or male plane of maturement. The growth of its aqueous stratum was, as now, the combination of aqueous essences ascending from lower nuclear strata with those descending from higher atmospheric strata.

This stratum of water was just the matrice needed to so mould and measure the qualities and quantities of germs fruitful to the compounds and complex forms that were continuously ascending and descending through it, that they became combined as corresponding compounds and complex forms on the intermediate plane of maturement. This matrice of its own included forms of life during their gestation on their nuclear plane was, as now, alive, *per se*, like the placental world of a pre-natal mammal. The same is true as regards the generative functions of the pre-aqueous nuclear strata. The trees and mountains, and other vegetable and mineral projections through which they inhale higher atmospheric elements, are as indispensable to their life

as wholes as are the various gillous projections of their respective interforms, which live upon their living elemental germs. When, in consequence of the general outgrowth of our sphere, aerial elements became gradually interposed between the aqueous stratum — then no longer the intermediate, but a nuclear stratum — and its atmosphere of aqueous vapors, its purely water-breathing animals became somatically de-organized from inability to breathe aerial elements. Its atmosphere — the sum of theirs — becoming interposed between the atmosphere of its predecessors and the new stratum of aerial elements, the elemental germs of its compounds and complex forms became the proximate super-bases of those within the aerial stratum ; those fruital to the acrIALIZED stratum of surface-water being the proximate bases ; while those from the strata above and below the former became their ante-proximate super-bases and bases.

The fact that the earth's solid strata are made up of the solid incasements of its defunct animals, its rocky masses being as truly animal skeletons as are the crustaceous fragments that make up its vast beds of porous limestone and chalk, while every other temporary matrice or refuse, from ova-shells and placentas to the most refined nuclear organisms became additional thereto, licenses the assumption that they are entirely composed of the elemental germs *in ovo* fruital to the essential or elemental organisms developed within them, but now ascended to the atmospheric plane of maturement. By parity of reasoning, we assume that their present atmospheric germs are continuously being brought into combinable proximity with these nuclear germs through the descent of the meteoric vapors and mineral dust

by whieh they are inceased; and that, while the latter become combined with the germs of like eom pounds, the former eombine with the germs of like complex forms. Were not the earth eonstituted of an equal quantity of like substance, condensed in the aggregate to a degree of resistancee commensurate with the persistent pressure of its atmosphere,— estimated at fifteen pounds per square inch,— there could be no exehange of elemental germs or mutual nourishment by each other's opposite elastic potencies, whieh includes a like exehange between the products of each; and no correlative forms of force, because there could not be, as there now is, germs of forms whose elasticities are so modified that they eombine in the same specifie forms as the matriees within which they were moulded.

As man's nuclear organism is correlated with his atmospherie organism, whieh enspheres every spherular nuclei of its entire vascularity, in like manner as the solar atmosphere enspheres the earth and its assoeiate planets, the respirations by the inter-vascular bronchia, the expansion of whose extremely condensed atmospherie gases propel the blood and other fluids onward in their circuit around the eentre of the heart, are interrepetitions of the earth-sphere's respirations effected by the plus and minus condensation of its atmospheric strata during its axial rotations, whose minus and plus expansiveness propels it onward in its orbit from its aphelion to its periphelion, and *vice versa*. That is, the projectile force of the heart is to the human organism what the projectile force of the earth is to the terrestrial organism.

Only as we pereeive that the cssential force of the systems of eirculation, in its every interform, is pro-

jected as like systems within its atmosphere, as is the essential force of the earth's aqueous and aerial tides into its atmosphere, can we perceive that the movements of each organism and organ are *reflections* of like movements by their respective atmospheres.

CHAPTER VI.

1. ELEMENTAL germs combined in such proportions that they constitute strata of unlike compounds, *are, per se, a contradistinct form of force*. This, because in arranging themselves normally — that is, in the order of their lessening specific gravity — from a central base or axis of resistance, they combine their individual spacialities by the extroversion of their atmospheres; that of each compound germ becoming expanded in the order of its condensability, the outer atmospheric stratum being the atmosphere of the innermost stratum of compounds. Being brought together and held *in statu quo* by the counter-forcitiveness of the earth and its atmosphere, within whose parental embrace their elastic tendencies were moulded, the condensive force of the united atmospheric germs is the counter-equivalent of the expansive force of the united nuclear germs, under the same surrounding pressure.

This is our ideal of the incipiency of the prime compounds of earth, water, air, and fire, which aggregate by spontaneous growth, in simple forms, without the re-moulding of their elementary germs within specific parent forms as their specific ova, as is the case in the incipiency of more complex forms to which they are provisional. Yet each alike grows up to its typal

structure by the combination of the nuclear and atmospheric germs of our common strata of subsistence between its prime nuclear and its prime atmospheric germs, thereby fitting its atmospheric organism for out-birth into a higher atmospheric stratification. Hence each and all, from the lowest cell to the highest sphere, climb up to higher altitudes by subjecting consecutively higher atmospheric germs as its consecutively more interior constituents, each of which retains intact its every subjected or inherent motive tendency. The essential qualities of the elements of each germ become those of the form that subjects them. This, because atmospheric essences, when transmitted to lower altitudes, either as essential fruitage, or aggregately at somatic death, are equally forcitive as essential substance as when somatically alive, and occupying higher altitudes: hence are a part of the life of Infinite Being on the essential or archetypal plane, regardless of time. That is, whether regarded as past, present, or future types of essential force, the *completeness* of each *form of force* includes all the essential tendencies that pertain to *its entire being* as an integral part of the Infinite Archetype, whatever the era of its advent regarded as the *now* of a specific plane of objectivity.

2. Taking it as granted that the super-nuclear essences fruitful to the earth's sub-stratal forms in the *now* of their surface existence were the nuclear or basic constituents of present surface-forms, and the nuclear essences fruitful to the latter — *then* simply typal — were the super-nuclear constituents of the former, we have a clew to the, to us, typal existence of forms that sustain the same relation to the *now* present surface-forms that

they sustained to past forms in the *now* of their existence as surface-forms.

With this clew, which clearly reveals the fact, that, on the essential plane of being, there can be no individuations of time, and that, on the typal plane, there can be no individuations of form — types as such being simply the spacial conditions of the different strata of a sphere which become the static or structural qualities of the forms developed within them, we perceive that each stratal type was, is, and ever must be, an intermediate between a corresponding sub-stratal and super-stratal type, and perceive that each stratum, with its infinitude of typical forms, is the typal representative of a sub-stratum and a super-stratum proximately provisional to its development; and also perceive that spheres are typal representatives of strata of space filled by corresponding but counter-spherically conditioned spheres.

In perceiving that the *completeness* of each form, stratum, and sphere, includes the conditions — the static and dynamic qualities — of every other form below and above its altitude, we perceive that each form — man's included — is, *in the present*, all that it ever has been as a past and a prior-past surface-form; hence that it actually *is*, as form, a part of every other form below its stratal status. Every element and every complex form is both procreant and pregnant in the sense of impregnating, and being impregnated by, each other's empyreal fruitage. This is, *per se*, coinnensal gestation.

There is no such thing as absolute precedence on the essential plane of being. Parents are prior only in the sense of being on the mature plane of formation when

their offspring are on the embryonic plane as regards the *now* of their specific existence. There is nothing abstruse in this, if we but bear in mind that it is the *essence of substance* only that is germinal, and that formation in its prime synthesis is between empyreal atoms; one, or one equivalent, of which is nuclear, and the other one, or other equivalent, is atmospheric, under which counter-spacial condition they combine atom with atom as nuclear and atmospheric nutriment *on the essential plane*. As the prime bases and super-bases of formation within our sphere, the earth's elements are on the embryonic plane; while those of its atmosphere are on the mature plane.

The essence of being, which becomes the substance of things, *in being complete in itself conditionally*, is forever just where the forms it becomes *need to be*, which is just where its essential force *in those peculiar forms of force is needed*. The essential germs of parent forms are simply the ex-nutritive essences of their elemental spherules. In becoming plus condensed within the *internal* genitals of the female parent, and minus condensed within the *external* genitals of the male parent, so that, under normal conditions, they combine as twain-in-one counter-nutritive atomic motors on the embryonic plane, thence grow into the parent structure on the mature plane, these essences do not change their identity, or for a moment cease to be what they eternally are; viz., THE ESSENCE OF BEING.

An embryo of a specific form, in being made up of the essences ex-nutritive or fruital to the constituent elements of both its parents,—all of which were priorily moulded as the essential representatives of their commensals within their different strata of subsistence,—is,

per se, a miniature representative of said strata, with their various species of form, mineral, vegetable, animal, and gaseous. The more obvious fact that parents and their offspring subsist solely upon the essential germs of these various terrestrial forms, whether or not remoulded within the maternal organism — all of which grow up to their typal status as the interforms of these strata, reveals the less obvious fact, that each culminate form is not only a part of every past form as regards its structural proclivities, but a part of every present form as regards both its static and its dynamic qualities. Only as we perceive that the earth's adaptability to repeat upon its present surface the same types of force as were its surface forms in the past, each differentiated by greater complexity, is the result of its own outgrowth into greater spacial freedom, can we perceive that substance is necessarily comminuted to correspond with the increase of the ultimate points of space from the centre of a sphere, which accords with the assumption that the *functions* of its forms, as regards expression, are complexed in the ratio of their *increase in freedom to move*.

And only as we perceive that the earth's present surface-forms are constituted basically of the essences fruital to the super-basic elements of corresponding types of form indigenous to lower strata, and super-basically of the essences fruital to the basic elements of corresponding types indigenous to higher strata, can we conceive, that, when separated by somatic death, their bases and super-bases necessarily *return* to the strata to which they are respectively indigenous as essential types; or perceive that the elevation of the latter, as wholenesses, to their native strata, is effected by their

atomic combination with corresponding essential types indigenous as such to still higher strata. Or, in other words, their super-basic organisms are *organically or aggregately re-embodied*, while their basic organisms are *elementally or segregately embodied* as elemental ova.

And only as we perceive that the earth's surface-forms — not a millionth of which are sensibly expressed — are repeated on consecutively higher planes of comminution as atmospheric forms, can we perceive that this is effected by the concentration of the essences fruital to their basic elements as the super-bases of the nuclear counter-part of their offspring, which, in virtue of being plus expansive in the degree they are minus mobile, are the centrifugal agents which elevate the super-basic essences of these atmospheric forms to still higher strata.

3. In perceiving that every form, regardless of sex, is a matrice for the moulding of essential types, and that while their super-basic essences are inborn within every other form, as sound, light, odor, sapidity, and tangibility, — nutrient to corresponding sentient types within them, — their basic essences, as wholes, are condensed as their specific forms *in nucleo* within their specific organs of generation, we perceive that the functions of the generative organs of the two sexes of each species are to effect the plus and minus condensation of the counter-halves, the nucleus and atmosphere of their specific form on the embryonic plane. And in perceiving that every complex form has its surface parasites, and that even the organs of specific generation, like the alimentary canal and lungs, — each of which has its peculiar parasites, — are but foldings in of its

prime outer surface as internal gestative receptacles, we assume that specific germs are gestated parasitically.

When an organism has attained puberty, and its introverted essential germs of form are no longer needed to add to its growth,—every cell having attained puberty,—they are transmitted to and forced through these introverted pores into receptacles of individuation — ovarian, which expand only as their content demands, so that they are retained *in statu quo* until every point of the entire dual organism has its representative germ arranged in reverse order.

The ova of the two sexes of a species are pre-specific germs. When atomically combined as a specific germ, the functions of the female are centrifugal, and those of the male centripetal, as regards predominance. Whether it subsequently subsists upon the essences of its native stratum of clements, which become forced within the pores of its common blastoderm, unconnected with the organism of either parent or within an external gestative receptacle of the male parent, or wholly or partially within an internal gestative receptacle of the female parent, which culminates in lacteal gestation post-natally supplied, its entire growth is purely parasitic.

Taking it as granted that every terrestrial form is an individuation of terrestrial gravity, and that all forms are alike parasitic, and that, as stratial forms, they are complexed in accordance with the conditions of their respective localities during pre-natal and post-natal gestation, we assume that the tendencies of each are inherited from the especial strata of the earth-sphere whence it draws its sustenance; hence that the forms and functions of each new type reveal the conditions

of its sphere of subsistence at the time of its advent as a new complexity of organic force. And, taking the earth itself as the culmination of all the types of form that constitute it, we find the records of its growth *in what it has become*. If the vitality of our sphere is the elastic tendency of its essential substance, expressed in accordance with the counter-spherical condition of its nuclear and atmospheric equivalents, which is the sum of the vital powers of its ultimate spherules, then the vitality of each individual organism is the sum of the counter-elastic tendencies of its constituent spherules.

4. Now assuming that the earth-sphere is, was, and ever will be, typally a part of the archetype of Infinite Being, it could become contradistinctly existent only in the sense of becoming so recognized by conscious beings by comparison with other spheres contradistinctly regarded. In the absolute there can be no such thing as contradistinct existence. It is only in this sense that we can recognize the development of the earthly part of our planet as contradistinct to the simultaneous development of the aqueous, the aerial, and the super-aerial strata. Assuming, as we do, for reasons already given, that the prime nucleus of our sphere is constituted of atmospheric gases condensed in accordance with its archetypal status, there was a *now* of the past, as we reckon time, when its surface substance was so far removed from its spherical centre as to be free to move atomically, and to aggregate in the lowest forms of life; the essences of the denser gases below being their basic nutriment, and those of the rarer gases above, their super-basic nutriment. Fixed upon this prime surface, vegeto-animal formations became incipient.

Inasmuch as each thing, in its culminate expression or ultimate synthesis, is, of necessity, what it is in esse nec, or in its ultimate analysis, our planet as the *terra firma* culminate of its constituent products, must be vegeto-animal; the vascularity of each being vegetable, and the vital power of its circulating media animate, whether the substance involved be classed as mineral, vegetable, animal, or gaseous. All its surface-forms, be they free or fixed, are, in their aggregate capacity, the secretive and excretive organs through which the earth absorbs atmospheric fluids, and radiates its own nuclear fluids; its growth, as that of its products, being the sum of these counter-tending fluid-germs that become diametrically opposed and statically cohered within their respective spacial limits. Although parasitic organs of interchange between the atmosphere and the nucleus of the earth-sphere, they are, at the same time, individual organisms contradistinctly motile, between which and their atmospheres like organs (*eilia*) with like specific functions, are repeated.

The functions of the mouthlets and stomata, or breathing-holes, on the roots and branches of the epidermic appendages of animals, are identical with those pertaining to the roots and branches of mountains, trees, plants, and grasses. Following the lead of these principles, the tendencies of the substance of things, we assume that the rays of plus condensed fluids issuing from this prime surface, atmosphered by like rays of descending fluids, were the prime roots whence super-surface vegeto-animal formation ascended.

5. It is no great strain upon the concepitive powers to create vast layers of solid minerals, formed as coral-beds, at altitudes so low that the polyp-cells are too

minute to be revealed even artificially to the human eye, or to follow up the tide of time to a *now* of the past when they attained altitudes of sufficient spaciality to assume vegetable forms of the lowest complexity.

The fact that coral produuetions in the present assume the forms of the most complex flowering-plants of the present, is self-evidence that they have arrived at this stage of complexity by an involution of the same principles as those by which flowering plants have grown up to their stage of eomplexity from the very lowest forms of vegetation.

The *rationale* of this is revealed in the faet that the essential types of mineral forms — animal productions — are the bases of vegetable forms: hence the growth of vegetable forms above the aqueous stratum was necessarily simultaneous with the growth of like mineral forms below its surface.

And just as our highest flowering-plants require aerial and super-aerial nutriment as their outgrowth, so have the essences of the aerial and super-aerial strata been transmitted through the earth's mineral and vegetable villi to its ocean-beds, thereby becoming plus condensed as the basic nutriment of the coral polyps that generate their submarine counterparts. Aerial vegetation is based upon, or rather is the culmination of, mineral and aqueous vegetation.

It is purely in virtue of the outreachings of its moun-tains through the aqueous and aerial strata into the super-aerial strata, that their essences become concentrated as the bases of the earth's interforms assimilated by them as basie nutriment, or solid and liquid food; the same essences, but minus eondensed, being assimilated as super-basic nutriment from atmospheric gases.

The same counter-forcitive germs of form are generated within the inter-circulatory systems of all vegeto-animal forms.

In speculating upon these principles, we assume that the bases of vegetable forms are the earth's prime radials of essential force, its lines of empyreal atoms gathered in from below its surface as branching roots, which by compaction form the cylindric body, thence by expansion form corresponding branches above it. And also assume that these radial lines are permeated and en-sphered, atom per atom, by corresponding lines of atoms tending toward the earth's centre. Hence we regard the downward and bilateral extension of the roots of vegetables, and the upward and bilateral extension of their branches, as accumulations of these lines of atoms, which, by direct opposition, become staticised *in position* as their forms from the "collar," or point of prime germination in every direction in accordance with the inherited tendencies of the prime counter-germs.

And also regard the basic and super-basic substance staticised as their growth as intrinsically homogeneous, but so moulded by the structural tendencies of the forms it has priorly become, that it is just adapted to assume the positions which the structure of each demands. A vertical section of endogenous wood-fibre very clearly illustrates these perpendicular radials and horizontal rays, each of whose cubic interspaces contains a cell with like prime and sub radials. A horizontal section of exogenous wood reveals the fact that growth from a longitudinal axis perpendicular to the earth's surface requires the projection of radials horizontal thereto, which, in turn, project bilateral rays, whose increase in

length is in the ratio of their increase in distance from the central axis; and also reveals the fact that like radials are repeated by comminution at definite distances therefrom. This clearly illustrates stratial formation; while the oblation of the centreward hemisphere of their intercells, and the prolation of their opposite hemispheres, reveal the wherefore that the weight of substance decreases in the ratio of the square of distance from the centre of a sphere.

From these expressed tendencies of substance under spherical modifications, we infer that the number of the earth's radial lines of outflowing essences are squared by comminution at definite altitudes above sea-level; while those of its inflowing essences are correspondingly reduced by coalition at definite depths below it. And also infer that the currental systems within the gravital limits of the strata of different compounds are their vital functions; and that our stratification, as their culmination, outgrows by repeating and re-repeating the currental systems of each within the interforms of each as *their* vital functions in accordance with their spherical status, the vessels of which latter are inter-repetitions of the boundaries between the root-currents and branch-currents of these different but inseparably correlated systems of inter-stratial circulation. And further infer that the bases and super-bases of their growth are empyreal essences condensed and expanded as the earth and its atmosphere; which essences, from their innermost and from their outermost ranges, are continuously being brought into combination within each through the agency of the sphre's culminate currental systems.

6. The mineral kingdom, "which embraces all natural productions formed by the action of chemical affinity,

and organized by the powers of crystallization into solids," is as truly organic as the vegeto-animal kingdom; and the decombination of their organic compounds, prior to their assimilation by the latter as basic nutriment, is effected in the same manner as the digestion of animal and vegetable compounds prior to their assimilation as basic nutriment of greater complexity.

The organic tendency of the gaseous kingdom, the atmospheric counterpart of the aqueo-mineral kingdom, is clearly revealed in the arrangement of their spherules as snow crystals, which are increasingly complexed by the repetition of their radii in the ratio of their increase in altitude at the time of their congelation. And the decombination of these atmospheric compounds—predominantly air, meteoric water, ammonia, and carbonic acid—prior to their assimilation as the super-basic nutriment of animal and vegetable organisms is effected by the same process.

Evidently the radii of crystals are repetitions of the radial lines of essential force centrifugating from the sun at the points of intersection between the planes of its axis and equator with those of its planets, the complexity of which accords with the spherical status of the planet, and also the altitude from its surface where they become aggregated.

While the lesser and greater astronomic changes make up the earth's stratial records, its chemic changes are recorded in their elements, compounds, and complex forms. Although its *terra firma* structure as the wholeness of its different kingdoms of form is simply that of a submarine parasite but partially emerged, yet their continued increase in complexity is nature's guaranty of its continued progress as their culmination.

The apparent drying up of the earth's surface-water is evidently due to changes in its topography consequent upon a continuous decrease in perpendicular pressure in the ratio of its increase in altitude. This greater freedom to express the expansive elasticity inherent in the substance involved has resulted in an *increase in the number* of projections and depressions of its solid surface, and a lessening in the horizontal prevalence of water, in the ratio the earlier and less numerous projections and depressions *decreased in height and depth.*

The disparity between the earth's superficial and orbital velocity is proportional to the disparity between the height of its projections and the depth of its depressions in the aggregate. This, because the relatively westward flow of water within these depressions overbalances, hence retards, the eastward velocity of the projections in the degree the latter are less distant, in the aggregate, from water-level. But this disparity necessarily decreases in the ratio the equivalent of meteoric water attains higher altitudes. As regards the especial development of the mineral kingdom as it now reveals itself, we assume, for reasons already given, that it was effected by the combination, atom per atom, of the ultimate essences of the gaseous substance aggregated as the earth-sphere's prime nuclear and atmospheric counterparts; and assume, that, simultaneous with the atomic development of mineral compounds, animal forms became incipient; the essences of these compounds being their basic nutriment, and like essences typically existent as aqueous germs their super-basic nutriment. When these low animal forms had completed the foundation of a higher life by the formation of *true*

"primary rocks," they were succeeded by higher forms, to whose basic nutriment were added the essences of aqueous compounds; the essences of higher atmospheric compounds being their super-basic nutriment. When their cycle of complexity was completed by the earth's outgrowth into higher altitudes, which resulted in a corresponding complexity of its compounds and the development of a still more complex foundation, their vital essences became the bases of still more complex animal forms, their nutrient compounds being correspondingly more complex.

7. During the successive cycles of elemental and climatic changes that totally and partially destroyed its somatic vitality in the total and partial extinction of its complex forms and the re-embodiment of their essential organisms in forms more and more complex, the geological changes necessary thereto were evidently effected, as they now are, by electric and magnetic fluids.

From the well-known fact that these fluids, artificially produced, decompose every known compound, by separating their elements, and effect their recombination as different compounds, it is safe to assume that it was through their agency that the oleaginous and other combustible elements of these earlier animal forms were decomposed, and forced out from their mineral skeletons, which, under continuously increasing super-pressure, became aggregated as reservoirs of different species of oils and inflammable gases; while the mineral and other non-combustible elements became separated from the hydro-carbons of vegetable forms, the latter being left as coal-beds of various qualities. As the ores and other mineral compounds became separated into their elements, thence re-aggregated as lodes of different

metals, their super-basic elements, the metalloids, combined with them more or less freely as oxides, silicates, carbonates, chlorides, and other salts.

Metallic veins are not only constructed by empyreal currents, in like manner as corresponding currents construct the nerve-fibres in animal forms prior to the possible existence of any other systems of circulation, but they are the true conductors of electric and magnetic fluids; and it is through their agency that the empyreal essences of elements below, and those of elements above, the earth's surface, are brought into combinable proximity. Thunder-storms within the earth's sub-strata, recognized as earth-quakings and volcanic disturbances, are the correlatives of thunder-storms within its super-strata, both alike being the efforts of these empyreal agents to maintain dynamic equipoise between its basic and super-basic elements. When atmospheric electricity is in excess, the rapid condensation of their vapors, caused by the lowering temperature of superjacent elements, forces it from the clouds; and the friction of its rapid transit earthward ignites the aerial elements, rendering its track visible as lightning. When aquo-earthly electricity is in excess, it sometimes causes the elevation of water as water-spouts; at other times, its whirlwinds on land destroy every thing in their wake. In the destruction of the village of Camanche, Io., massive buildings of brick — churches and warehouses, private dwellings, with their outbuildings — were lifted from their foundations. The leaves, and even the bark, were stripped from standing trees, showing conclusively that the fluid must have burst from the earth in dense masses in its efforts to combine with that escaping from the trailing cloud.

The disastrous effects in this case, which included the loss of forty human lives, and those of other similar but less disastrous cases which have come under our personal observation, we accept as striking corroborations of our assumption that the force of affinity between empyreal elements indigenous to different altitudes is the result of, and proportional to, disparity in spacial extension. Such facts are affirmative answers to the query whether currents of electric fluids ever issue from the earth in quantities corresponding with those which enter it from the atmosphere during thunderstorms. And their combination below its surface is, to us, a satisfactory explanation of the formation of metallic and other mineral veins, whose atmospheric deposits, as mineral dust in veins or otherwise, they permeate *in the present*.

Hence our assumption that such veins are still forming. Local disturbances are the result of astronomie changes, which inevitably produce chemic changes. In becoming telegraphed from its circumference to its centre, the chemic agents involved procreate the necessary re-actions within every radial nerve of the earth-sphere. The disturbances produced in the chemic relations of its interforms are in accordance with the proportion and peculiar arrangement of the aqueo-earthly and atmospheric elements of each respectively.

If it be true that the most fatal epidemics known occur during the simultaneous perihelions of Jupiter and Saturn, it is evident that these disturbances are caused by spacial changes.

When these immense masses of substance are passing between the nucleus of the solar sphere and the nucleus of the sphere within which it subsists, the increased

density of the intervening atmospheres must, of necessity, increase the interchange of essential substance between these central nuclei, which, in turn, would produce a feverish exchange of nutrient substance between the sun and its planets; that is, compared with the exchange when a more equal distribution of direct planetary rays are focused upon the sun from directions bilateral to the line of the earth's apsides, which is a more equal distribution of the ebb-tides they cause on the sun's photosphere, and of the dark spots that evidently result from tidal changes.

Geologic and historic records clearly indicate that these stormy and pestilential electric and magnetic equilibrations are becoming less abrupt and less disastrous in the order of the earth-sphere's outgrowth into greater spacial freedom. This, in turn, indicates that the ferocity of its animal forms will decrease in the same ratio from an ever-increasing mediocrity between need and supply.

In the degree that intercomplexity of *formation* approaches the minuteness of essential substance, in that degree does the organization of individual beings harmonize with the *essential organization of Infinite Being*.

8. The leading question as regards the beginning of formation—the fact that forms *do begin* to become objective to human sense being unquestioned—is, How does the substance of things begin to become aggregated in the various forms that constitute our plane of sensible expression?

In reviewing the various theories, past and present, we perceive the same central idea, variously expressed, incorporated in all, viz., that their prime types were created by an omniscient, omnipotent, and omnipresent

Being. The various architectural designs presented by the different theorists are highly suggestive as to the origin of this Creator, and the wherefore that man cannot perceive the Creator *in that which is created*. In addition to the disadvantage of conducting his concepitive creations through the agency of this ideal Creator, who, like himself, is always more or less committed to public prejudices,—necessarily incompatible with free thought and normal progress,—man materially detracts from his store of self-knowledge in divorcing therefrom that which pertains to his *ideals* of Omnisience, thereby ignoring his ideals *as his own conscious knowledge*.

Herein is perceived the truth of the Baconian motto, and more especially that of its correlative, *that man cannot understand nature until he has outgrown all his idols*.

This is equally true of Bacon's pet ideal of inductive philosophy, for the reason that every step taken in tracing Cause to the inner condition of things is measured and weighed by the effect, or outer condition, and *vice versa*. Any attempt to separate CAUSE from EFFECT necessitates the concepitive creation of an arbitrary Creator possessed of the *identical attributes that are everywhere manifest in the tendencies of essential substance*.

In recognizing these very attributes as immanent in, or as the inherent tendencies of, the ESSENCE of things, which, by aggregation, become their *substance*, in and through which the all-embracing PERSONALITY of being, within which all things live and move, and have their being, is made manifest, we are confident that no higher ideal of the Infinite Architect has ever been presented to the world ; and are equally confident that no greater

incentive to a virtuous life, and the avoidance of evil-doing, can be presented than the assurance that each man creates and furnishes his own heavens and hells by and with whatever he cultivates practically, and treasures up within his heart by centring his affections upon them. The assumption by Plato, that God created the universe after an archetype that eternally existed in his reason,— which, as a *conceptive creation*, is peerless,— is identical in principle with the assumption that the attributes or tendencies of substance in its intrinsic and conditional completeness as the essence of being, eternally existed in it. Fully assured that this ideal of Creative Energy can never be, as it never has been, superseded by a higher, we accept its energies fully as those basic and super-basic to, or underlying and overlying, formation, in every minutia.

The first aspect of change presented to the mind is the difference in condition between substance as "*primordial essence*" and as *form*.

As before asserted, it is possible to conceive of its diffusion as the content of the ultimate points of space, and also to conceive of a relative limit to its elasticity within its interspherical individuations.

In recognizing cell-nuclei as the ova of cells, we perceive that they are the essential fruitage of the counter-spherical strata of their parent cells, proximate and remote.

If a cell is constituted of different elemental spherules, its prime nucleus is an aggregation of the essences of like elements: hence its culminate fruitage, its own form *in ovo*, is constituted of the essences fruitful to its every elemental spherule associated as one form of force,— its offspring *in ovo*.

9. Although biologists regard the transformation of a chick *in ovo* as the best exponent of the incipiency of animal forms within the range of investigation, yet they never take into account the inherited tendencies of the substance involved, otherwise than as certain "unaccountable laws." To us the "mystery" as to *how* and *why* substance becomes existent in certain forms rather than in others consists in the non-recognition of the *necessity* and actual *presence* of the counter-tendencies inherent in the substance of a thing *in embryo*, and of that which, *in nourishing it, becomes the thing per se.*

That the ovum is the archetype of the chick which the ovum becomes, forcibly considered, is tacitly admitted. But the archetypal forces of the ovum, which are of necessity the basic cause or re-acting mainsprings of its becoming transformed into a chick, are never regarded as a mechanical necessity, but as *superinduced "vital forces"* as undefinable as unaccountable.

In our ideal of the motive powers involved, there are specific periods at which all animals arrive at puberty; that is, periods when there is an excess, and consequent introversion, of the essential germs which are continuously radiating from every pore of their organisms. At these periods the generative and gestative organs of both sexes become relaxed, both being equally generative.

In the case of the mother-fowl, as the tissues of the ovarium relax, the secretions that constitute her ova are made up of the essences fruital to every element of her organism, transmitted through channels and vessels that ramify the cellular membranes of its entire integuments. The specific structure of every form is developed from

elemental germs nucleated as counterpart ova fruital to the counter-sexual spherules of the elements that make up the counter-sexual organisms of the complex species within whose counter-spacial generative organs they are ripened as *pre-specific* fruitage, and where their plus and minus condensation is effected. In virtue of this, when brought into combinable proximity, they equalize their elasticity by combining their counterpart areas of space on the same principles as those underlying the equal diffusion of gases of different elements; that is, each compound spherule, basically condensed, becomes atmosphered by one super-basically condensed. This, and their stratial arrangement is evidently effected during the "segmentation of the 'germ-yolk.' "

10. Like their prototypes, the earth and its atmosphere,—each specific parent has its nuclear and its atmospheric organism; the elements of the former being on the immature plane, and those of the latter on the mature plane. Hence they combine as elemental or pre-specific offspring, female and male protozoa, within the genital organs of both sexes of a species.

The genesis of these inter-genital offspring, like the radiation of their atmospheric counterparts from every surface-pore of their objective organisms, is continuous, regardless of specific puberty. Specific puberty is the culmination of pre-specific puberty when the elements involved aggregate their ova as the bases of specific ova; those of the nuclear elements being fertilized by their respective atmospheric pabulum. This constitutes the specific germ-ovum, or "germinal spot" of the food-ovum of the female parent, which is on the minus mature, or female plane of development, like aquo-

earthy elements; while the protozoan offspring of the specific male, termed "spermatozoa," are on the post-ovum, or atmospheric plane; both of which planes has its minus and plus mature stages of development, or mouldings, within counter-spacial organs functionally female and male.

Although the microscope reveals the presence of the protozoan animalcules, or "spermatozoa," of the male parent in the vicinity of the "germinal spot," or hilum, of the fertilized food-ovum of the female parent, yet the fertile principle — assumed to be the fertilized ovum of the female of these male protozoa — is utterly non-objective. No artificial aid has as yet revealed to the human eye the slightest difference between a fertile and a non-fertile ovum. As males in the simplest species are the smaller sex, and often non-recognizable, evidently the so-called "spermatozoa" of males revealed through the microscope are females. Hence, in perceiving that the essential germs fruital to the specific male penetrate below, as well as descend from above, the altitude of those fruital to the specific female, we perceive that fertility is effected through the fruitage of the female of his *pre-specific or protozoan offspring*. *Per contra*, the essential germs of the specific female are, in turn, elevated above, and descend below, that of the specific male, through the fruital essences of her *specific male offspring*. This elevation, by successive steps downward, thence by successive steps upward, is, *per se*, the *modus operandi* by which the essential germs involved combine and complicate their *inherent* minus and plus mobile or static and dynamic motive powers, — their different mechanico-vital elasticities.

Our perception is obtained from a revelation of this

very process in our strata of subsistence. There are certain species of insects in which the females are wingless, and the males are winged, or present other signs of minus and plus maturity. And it has been ascertained that these insects are genetically connected with lower species, in which the females are correspondingly more conspicuous, and that the offspring of the lower are first developed up to their structure; thence, by passing through a kind of pupal state, they attain the structure of the higher. This is our license for assuming that the specific ova of all the higher species are dual in the sense that the inner or germ ovum is *de facto* the fruital essences of the outer or food ovum of oviparous animals, or of their correspondents within the maternal organism of viviparous animals; and that the fertile principle by which the offspring of the higher species are evolved from the lower is the fertile ovum of the lower or protozoan species developed within the male of the higher species, its constituent essences being fruital to the ova of his constituent elements nucleated as his spermatic fluid.

The fact that the ova of the females in higher species are developed within the ovisacs of a common ovarium, in like manner as the planet-spheres are developed within the solar sphere, or the earth within its atmosphere,—all alike being built up of atmospheric essences plus condensed,—corroborates the assumption that the elasticity of the contents of the ovisacs and ovarium are respectively centrifugal and centripetal, or functionally female and male.

Per contra, the fact that the outer testes of males are plus spacial compared with the spaciality of the inner testes within the “appendix” of the male genitals of

higher species—the assumed representatives of the elastic force of the rays projected from the earth's maternal and paternal suns, and concentrated upon it from their respective distances, are functionally male and female, in the sense that the latter sun is below or nearer the focus of infinite gravity than the former sun, hence, as the nucleus of a more embracing sphere, is female, while its super-solar atmospheric rays are relatively male,—this licenses the assumption that the "ova of evolution" within the outer testes are fertilized by the fertile ova developed within the inner testes.

The fact that these ova include several sperm-cells, within each of which is a single "spermatozoon," is clearly revealed by microscopic investigation.

This revelation, that they are gestated like higher species, not only proves that they are distinct animals, but that their peculiarities, like those of the ova developed by the female of different species, correspond with the zoölogical relations of the different species of males within which they are developed.

In accordance with the clearly revealed principles of involution and evolution, by virtue of the counter-elastic potencies of quantitative equivalents of essential germs counter-spacially conditioned, we assume that the "white yolk," of the chick *in ovo*, interior to the "yellow yolk" is the intertype of the sunward halves of the earth's aerial and super-aerial strata; and the two albuminous layers termed the "white" are inter-types of their anti-sunward halves; while the two haloes, or layers of the "yellow yolk," represent respectively the lower and upper hemispheres of its aqueo-earthly stratum. Although these introverted and extroverted

hemispheres are, as wholes, respectively nuclear and atmospheric, or female and male, yet we must bear in mind that both alike have their root-currents and their branch-currents — functionally female and male — in the different systems of circulation they become.

The greater expansibility of the germs introverted through the inner roots, compared with those extroverted through the inner branches, is the equivalent of the greater elevation of those introverted through the outer roots when extroverted through the outer branches. During the earth-sphere's orbito-axial revolutions, the aquo-earthly, the aerial, and super-aerial strata are alternately plus and minus condensed by being subjected to lower and higher altitudes of solar gravity during equal periods of time. Not only are all their interforms coincidently subjected to these changes, but each repeats them within itself through the agency of its circulating media, with a frequency proportional to its lesser quantity, modified by its freedom to move.

The elemental germs of these strata, when subjected as nutriment, constitute corresponding strata, or systems of circulating media, with their respective vessels as the growth of their interforms, in accordance with the spherical status of each. In virtue of these conditions, the organism of the mother-fowl is adapted to concentrate the elemental germs fruital to one hemisphere of her atmosphere as basic motors, and the other half as super-basic motors, and also to concentrate one half of those fruital to her nuclear organism as inner, and the other half as outer yolk-strata, also counter-forcitive.

11. Parental organisms are simply matrices within whose organs the elemental germs fruital to their vascular systems are gestated and individuated. These

germs are assumed to be the essential offspring and representatives of the elements that constitute the various compounds and complex forms that make up our common strata of subsistence. Being subjected to like conditions during their development as ova or embryo elements, these germs acquire the same specific proclivities as the elements that make up the parental organisms, hence tend *mechanically* toward the same archetypal points during their specific development. When combined as their common offspring *in embryo*, the counter-elastic tendencies which become the essential vitality of their specific structures, are what these counter-sexual germs inherit from their counter-sexual matrices, not their substance, which is the common property of Infinite Being.

As substance, specific germs are identical with that which is continuously radiating from every element in nature as the correlative of that which is continuously being absorbed by each *per force of external counter-pressure*; forced respiration being virtually the sole process of outgrowth through ingrowth. At definite periods under specific conditions, these elemental germs become introverted as specific ova, or, from local conditions, as local ova internal and external, all alike being gestated parasitically during their attachment to the parent form whence they draw their basic nutriment. The genesis, or creation, of form, is purely the forcing together of essences so moulded by transmission through counter-sexual parent forms, that their elastic tendencies are, *per se*, counter-functions in the sense that each supplies to the other the fulcral force needed in order to move in the direction of their native altitudes, the opposite sources whence their counter-condensed nutri-

ment is supplied. Hence they move continuously in rhythmic alternation in like manner as the planet-spheres move from their perihelia to their aphelia, and *vice versa*, during which they obtain their basic and super-basic nutriment from lower and higher altitudes of the solar sphere in continuous alternation.

There is needed by each form, not only a continuous supply of essential substance plus and minus condensed from opposing meridian hemispheres in alternate predominance; but each needs and receives equal quantities of counter-polar essences, in like manner as the planet-spheres receive equal quantities of boreal and austral magnetism in alternate predominance during their alternations north and south of the plane of sun's equator. Not only this; but essences of intermediate meridionalities and polarities are demanded by, and supplied to, every form within our sphere, from which the overlying and underlying tendencies involved are inherited.

The fact that all forms are aggregations of elemental germs brought together from opposing directions during their successive stages of development must never be lost sight of. Evidently the counter-germs of the chick *in ovo* are atomically combined prior to the microscopic visibility of the "primordial vesicle." When the same degree of heat is attained at the beginning of incubation, the developmental process is resumed at the stage of arrest by the expulsion and cooling of the ovum. The pores of the shell being a perfect transcript of the cutaneous pores of the mother-fowl, and also prototypes of those of the future chick, they so measure and direct the thermal essences involved in the hatching, that they may be supplied artificially.

The first obvious change is the rising up of a portion of the "white yolk" to the surface of the yellow yolk beneath the primordial vesicle. The next change noted is the "division and subdivision of the white or germ-yolk" within an "embryonic vesicle," supposed to be evolved *within* the former, subsequent to its segmentation.

If, as assumed, the germinal spot or pre-specific ovum is an introversion of the elemental ova of the outer ovum,—a repetition of itself within itself,—then, in accordance with the principles of involution and evolution, it is a repetition of the more immature state of the specific ovum prior to its outgrowth to its less immature state, which outgrowth has been effected by the introversion of its ripened nutrient essences as ingrowth.

It must be borne in mind that the essential substance involved was priorly diffused within every element of the parent forms, first as nutrient, thence as ripened essences of their constituent spherules, having previously existed in various states external thereto, back through more and more embracing spheres *ad infinitum*. The ability of the constituent ova of this inner or soul-ovum within the food-ovum of the female fowl, when conjugally ensphered atom per atom by like but less condensed essences of the protozoan ovum of the male fowl to grow up to their structure, is in virtue of inheriting all the elastic tendencies of their constituent elements in their dual states of minus and plus maturity or mobility. Under normal conditions each of these twain-in-one counter-elastic germs, in their organic capacity, move alternately toward and from each other in rhythmic measures of time, thereby assimilate from every

direction the amount of heat or empyreal atoms in a due degree of activity necessary to produce the needed vacuos between and around them, into which the dissolved essences of the food-ovum become introverted as their vascular in easements. The condensive elasticity of these empyreal atoms forces down the substance of the outer portions of the food-ovum to the upper surface of the soul-ovum, or "germinal spot," which is always uppermost, whichever way the egg may be turned; while their re-active or expansive elasticity from the centre forces the substance of the central or "white yolk" up to its under-surfacae, in like manner as the heat latent in the earth's subsoils rise up to vitalize its products under the influence of the sun's direct rays.

When inborn within this soul-ovum, these centre-tending empyreal atoms, the soul-germs of nature's elements external thereto, combine within it as the atmospheric or plus mature counterparts of its nuclear or minus mature soul-germs. The next change noted after the absorption of a portion of the innermost and outermost "whites" within the primordial vesicle, and its segmentation into a universe of like vesicles, is the formation of the specific "embryonic vesicle" within which the chick becomes perfected by the introversion of the entire contents of the food-ovum. The "germinal membrane," which consists of two layers of cells,—the outer layer being termed the "serous," and the inner, the "mucous layer,"—is the first visible form. Subsequently what is termed the "vascular layer" is formed between the prime layers; all alike being cellular.

The nutrient and ex-nutrient essences involved in building up these layers constitute the embryo's prime

counter-currents, assumed to be its nervo-vital fluids, its first vessels being invisible nerves. In tracing back their inherited tendencies, we assume that the condition of the two prime layers represents that of the earth-sphere prior to the development of its aerial stratum between its strata of surface and meteoric water, hence prior to the genesis of animals possessing a true sanguiferous system or aerialized stratum. If, as assumed, the *Eternal Archetype* of the counter-forces inherent in Universal Formation is the inevitable effect of the counter-spherical condition of the *Essence of force* and *form* by means of which its intrinsic elasticity is rendered counter-forcitive, every type of organic force is of necessity included in and predetermined by it.

Hence each form must begin as an incipient universe, and become outformed by passing through the same typal changes up to the archetype of each respectively. The embryo chick is therefore two universes of elemental types of force unitized as one complex type on its specific embryonic plane. In virtue of being located intermediately between the nucleus and atmosphere of a universe of elemental types common to both parent forms on the mature plane, which it assimilates atom per atom *per force* of the solvent power of heat, it becomes inter-complexed as one form on the, to us, mature plane; the two layers of the "germinal membrane" being its prime counter-bases.

The haloes of the yellow, and the layers of the white, portions of the food-ovum, are to the embryo, during its outgrowth from the inner or ovum plane, what the aqueo-carthy, the aerial, and the super-aerial strata of the earth-sphere or outer plane were to its parent forms during its (the chick's) *elemental gestation* and ingrowth

on the inner or ovum plane as the counter-halves of their specific structure: hence its outgrowth therefrom, which is necessarily the exact reverse of its ingrowth, reveals, not only the different conditions of these strata, but the *wherefore* and the *how* they become atomically inter-combined and stratially inter-repeated within every species of form.

As there are interspaces, actual channels of circulation, between these halones or layers of the food-yolk into which they excrete their ripened essences, and from which they absorb their needed nutriment, it is safe to infer that there are like channels of circulation, for like purposes, between the albuminous layers, and also a main down-tending current counter to that which ascends from the centremost of the yolk-strata. This, because we perceive that the interior of the ovum, whence the germinal membrane is evolved, must needs be an introversion of essences fruital to elements introverted as the centrifugal strata of our stratification or world; the centremost organ being the stomach of the ovum. In virtue of these formative tendencies, as its substance becomes comminuted and coalesced, as need demands, by the solvent and adherent power of heat, each atom moves to its archetypally inherited position within the spacial limits of the nascent chick. Whatever its structure, its spherical status, or its sex, the substance of each embryonic form is equally female and male, or plus and minus condensed, hence has the ability to circulate from, toward, and bilateral, to its centre of gravity; and is always located intermediately between its needed co-equivalents of nucleated and atmospheric food, within which like counter-tendencies are inherent. That is, the counter-pressure by which

it becomes condensed and rarified, as its structure and functions demand, *remain in the nutrient substance as its own intrinsic germinal force*. When ripened within the form to which it has been additional, both as force and form, during its development up to a higher condition of existence by transition through it, its lower conditions being continuously substituted by the conditions of the nutriment subsequently assimilated, the *force* with which it is outborn therefrom is the counter-equivalent of that inborn with it. The combined counter-forces inherited from the forms through whose organic motivities its every prior motivity has been moulded constitute the motive powers of the essences of the elements or essential types of every form in nature, whether radiated as their essential fruitage, or introverted as embryos of their own pre-specific forms, or as local parasites. It is therefore the essences of these outborn elemental germs aggregated as forms, that constitute the *nutriment of every form in nature*. Or, to make it more plain, it is the empyreal fluids fruital to the elements surrounding them, which combine with the plus condensed empyreal fluids fruital to the superficial elements of complex forms, that constitute surface-growth, all of which is purely vegetative. As motion is life, and life is motion, animal life necessarily underlies both vegetable and mineral life. Animal life is elevated through vegetation; and minerals, condensed gases, are that which become elevated in virtue of their adaptability to combine as counterpart forces with such gases as they *primarily were*. Take away the vegetable formations from animal organisms, they are simply mineral and gaseous elements variously combined. Take away the mineral and gaseous ele-

ments, including the empyreal, there is neither *form*, *motion*, nor *substance* left. The lower or "mucous layer," as it is usually termed, of the "germinal membrane" of embryo animals, being chiefly concerned in the formation of the alimentary system, is sometimes termed the "vegetable layer;" and the outer or "serous layer," as it is usually termed, being the one in whose substance the vertebral column and nervous system are laid, is sometimes termed the "animal layer;" while the layer developed between them, being the foundation of the sanguiferous system, is termed the "vascular layer."

When we take into account that the vascular systems, or the various vessels developed from these embryonic layers (readily traceable in the development of the chick), with their circulating contents, are all there is of an organism, the inaptitude of terming the middle layer *the "vascular layer"* is at once apparent. The term "vegetable layer," applied to the lower or mucous layer, is highly appropriate, inasmuch as the chylo-lymphatic system of circulation, or aqueous stratum, in animal forms, is rooted in, and branches out from, the alimentary canal. But it must be borne in mind that every vessel has its distinct layers through whose vegetation, rooted in the lowest, and branching above the highest, the essences of its content ascend to higher and higher conditions of subsistence. The term "animal layer," applied to the highest layer, is also appropriate, if we but bear in mind that the sentience of outer life is the outer expression or repetition of the inner sentience that reaches down through and below all these vegetable forms into the mineral, gaseous, and animal forms within the alimentary canal, just as atmos-

pheric essences penetrate the earth's sub-strata. The "primitive trace," or vertebral column, as seen in the embryo chick, is laid in the serous layer only.

"This *trace*, which is the first indication that the embryo is a vertebrate, presently assumes the form of a groove caused by folds in the serous layer, that rise up on either side, and ultimately enclose the groove, growing together above it.

"From either side of this a prolongation passes outward, then downward, forming what is known as the 'ventral laminæ,' leaf-like folds: in this are developed the ribs and the transverse processes of the vertebræ; and the two have the same tendency to meet on the median line, and thus to close in the abdominal cavity, which the dorsal laminæ have to enclose the spinal cavity. At the same time the layers of the germinal membrane, which lie beyond the extremities of the embryo, are folded in, so as to make depressions on the yolk; and their folded margins gradually approach one another under the abdomen.

"The first rudiment of the 'intestinal canal' presents itself as a channel along the under-surface of the embryonic mass formed by the rising up of the mucous or inner layer of the germinal membrane into a ridge on either side. The two ridges gradually arch over and meet, so as to form a tube, which is thus 'pinched off' from the general vitelline or yolk sac, but remains in connection with this by means of an unclosed portion, which constitutes the 'vitelline duct.' The first appearance of regular channels is seen in that part of the vascular or middle layer of the germinal membrane (stratification) that immediately surrounds the embryo. The first blood-discs appear to be formed from the

nuclei of cells whose cavities have become continuous with each other to form blood-vessels. These gradually extend and form a network spreading over the whole membrane containing the yolk. The first movement of the blood, which conveys the nutrient matter of the yolk, is *toward* the embryo before any distinct heart is formed."

While the dorsal folds are forming the spinal tube, and the cephalic folds are forming the cranial and pulmonary cavities, and the caudal folds are forming the uro-genital cavities, and the ventral folds are forming the alimentary cavity, the embryo is in direct communication with the substance primarily condensed as the centremost of the ovum,—the interior white or "germ-yolk." If this subtle fluid, as its expansion and the levitation of the entire yolk indicates, is the central sun or centrifugal force of the chick's embryo universe, which, by combination with external heat,—the representative of the external sun,—develops its universe of interforms, it will, of necessity, be to its cell-ova what it was to the outer layers of the food-yolk. Hence it will be so condensed within the nuclei of the cells of its purely vascular organism and those of its circulating media, that its tendency to expand will be the centrifugal force needed by each and all.

12. As the transformation progresses under the quickening influence of heat, whose circulation embraces the entirety of nature, the substance of the food-yolk is forced in, atom per atom, through the pores of the mucous layer of the germinal membrane, and the substance of the albuminous layers of the food-ovum, through the pores of its serous layer. In virtue of their inherited positions, the atoms received through

the mucous layer tend upward and outward, while those received through the serous layer tend downward and inward; and retaining intact their prior tendencies as a wholeness, one yolk and one white, they combine, as a universe of atomic ova, each having its fertile inner ovum. These are microscopically visible along the line of the nascent alimentary, "pinched off" from the food-yolk.

In tracing the evolution of nucleated types of form, whether within food-ova, or within or without the parental organisms, we must bear in mind, that, *for every additional motive power,—power to move in a new direction by a developing form,—there must be corresponding counter-mature types of the same forms of force simultaneously developing on planes immediately below and above it.* This, because the counter-halves — the nucleus and atmosphere — of all forms on an intermediate plane of maturity *are constituted* of the essences fruital to the elements of the same species of forms on the embryonic and super-mature planes.

These principles of formation — which are purely the tendencies of essential substance toward equilibration in *forms of force* in virtue of being the *essence* or *spirit* of motive power intrinsically dynamic or alive — can be perceived only in perceiving that formation is the result of two eternally co-existent counter-forces, — the intrinsic condensability and expansibility of substance, and the sphericity and utter immobility of the area of space within which its motive powers as a whole are moulded. This perceived, the necessity of forms, being aggregated of co-equal quantities of essential substance counter-spherically positioned altitudinally, latitudinally, and longitudinally, so as to condition their needed extension

in height, breadth, and length and the needed motions in these directions, is readily perceived.

13. The dynamic organism, the soul of the nuclear organism of the chick, is essentially atmospheric in being the ripened germs fruital to the nuclear and atmospheric elements of its parent forms. Hence, in like manner as the growth of their parent elements, which is *per se* the simultaneous growth of the nuclear and atmospheric organisms of its specific parents, the soul-germs of the chick *become atmospheric* by subjecting, as interstitial nutriment, the germs fruital to the nuclear and atmospheric elements of our strata of subsistence, the sum of those constituting the nuclear and atmospheric organisms subsisting within them.

If, as assumed, these intermediate nuclear and atmospheric strata — within which the elemental germs fruital to the compounds and complex forms of all pre-existing strata become periodically nucleated in like specific structures, and commensally gestated as a new world of forms, in which the complexity and maturity of those of all pre-existing worlds are represented — be prototypal of the spacial modifiability of the organs of specific generation in female and male organisms within which the germs fruital to their entire elemental constituents become periodically nucleated as their common offspring on the elemental or pre-specific plane, then the soul-germs of every terrestrial form, present, past, and prior-past, are represented in those of the chick on its plane of complexity and maturity. The simultaneous growing of these representatives of the spacial condition of the earth and its atmosphere is purely a correlation of the motive tendencies inherited therefrom. The counter-halves of the chick

in ovo substitute the plus and minus maturity of the parent-germs, hence are, in tendency, the same types of form on the inner plane, *in being the embryonic likeness of both the parent forms.*

If, as a wholeness, the specific embryo-cell is the likeness of that of both its parents on the embryonic plane, then its twain-in-one atomic constituents are the embryonic likeness of their constituents' elements *in embryo*. The essence of an element *in ovo* is therefore the same form of force as the element, but on a more immature plane of motivity. If the essences radiated from forms by whose modes of moving we recognize their essential qualities are their whilom most subtle constituents, then their forms *in embryo*, in their prime synthesis, are empyreal elements *in embryo* at the maximum of coalition. In perceiving that the ultimate grade of substance at the ultimate degree of condensation, as the ultimate lines of static force outreaching from the centre to the circumference of Infinite Being, is the substratum of form, we also perceive that its counterpart of dynamic agents which pulsate continuously between these extremes in the most minute measures of time *must be of the same grade*. At its maximum of condensation as the cohesive force of organic vitality, the empyreal grade is the innermost plane of being; and at its maximum of expansion as external heat and light it is the outermost plane of existence as regards our plane of sensible expression. In virtue of this, to us, maximum range of elasticity, empyreal essences are the prime bases, and at the same time, under counter-spacial conditions, the prime superbases, of form, that is, as latent heat and latent light. And as no substance less refined than the empyreal

grade can pass through the integuments which constitute the boundaries between the different forms of life that people the different systems of circulation in animal forms, and between each as a whole and the contrasted forms surrounding it, each form is, of necessity, built up from these essences which enter it from such counter-directions as its needs demand, then combining within it as its prime and nutrient empyreal spherules.

As the circle of maximum resistance and persistence is intermediate between the outermost nuclear stratum and the innermost atmospheric stratum of every organic form, whether on the ovum or the mature plane, all alike being spherical as wholes, these strata are, of necessity, in equilibrium between its centre-tending and ex-centre-tending essential germs: hence are the culminating organs of generation within which all the interforms of each are primarily gestated.

This is clearly revealed in the development of the chick *in ovo*. The serous or outer layer, and the mucous or inner layer, are simultaneously developed as cellular membranes, between which the middle layer of cellular membrane is subsequently developed. By the introversion, atom per atom, of the two haloes or strata of yolk and the two albuminous strata of the white,—the sunward hemisphere of the latter being condensed as the centremost of the food-yolk,—these three layers become transformed respectively into the afferent and efferent systems of nerves and lymphatics; and the alimentary, including the lacteal system, assumed to be inter-repetitions of the earth's super-aerial and aqueo-earthly strata; and the sanguiferous system, including the bronchial, assumed to be an inter-repetition of its

aerial stratum. The order in which the essential representatives of these strata are condensed as the chick's organism,—a more inner world,—when perfected on the outer plane, is a clew to the necessarily reverse order in which these strata of elements were evolved or extroverted as the atmospheric organism of our world. That is, its outermost and less outermost strata are counter-spacial equivalents of its innermost and less innermost, between which is its outer-aerial stratum. We infer this from a perception of the necessity of this reverse spacial condition of the elements constituting its nuclear and atmospheric or less mature and more mature organisms.

Hence our assumption that the super-bases of the earth's solid elements exist as counter-spacial strata above the region of meteoric water. In assuming that the essential germs of meteoric water, which become the super-bases of surface-water, and the super-basic food of the ancestral forms of its aquatic animals and vegetables *now* on the meteoric plane, we assume what is known to be truthful as regards the constitution of aerial elements combined as air,—the breath of life to the forms that subsist within it. The elements paternal and maternal to the nitrogen and oxygen involved are indigenous to strata above and below the aerial stratum. The same is true as regards the parental relations of its less predominant compounds, and equally true of the elemental relations of every complex form developed within it. And, were not these counter-germs organized as nuclear and atmospheric counterparts analogous to the cellular constituents of its interforms, the aerial stratum would be instantly disintegrated by the rise and fall of its pre-

dominant elements to their respective altitudes of equipoise above and below the mediate altitude of aerial compounds. Their process of evolution being identical, our stratification is doing just what each of its interforms is doing, viz., becoming a contradistinct form of force. Being, like them, constitutively subjective to that within whose spaciality it outgrows, its individuation is effected by subjecting as its *internal* formation and motive tendencies the germs fruital to the elements of all the stratifications of the earth-sphere above and below its altitude therein, the latter, and its every ensphering sphere, re-acting contradistinctly by means of the same process of *internal* gestation. The aqueo-earthly stratum, which, by means of its mountain villi, outreaches thereto, contains *in embryo* all the, to us, typal forms of force constituent to the super-aerial stratum. While the volatilized or ripened essences fruital to aqueo-earthly elements ascend into the super-aerial stratum as the correlatives of the latter's descending essences, a like exchange is continuously going on between all contiguous strata. In virtue of this, all alike are continuously and simultaneously outgrowing from the outermost nuclear or aqueo-earthly surface into and through the spaciality of the aerial stratum.

As these two immediately opposed strata are continuously ascending into broader areas of space, there is, of necessity, a continuous concentration of their essential fruitage as the embryo counter-types of their every compound and complex interform, whose outgrowth as corresponding strata *within these interforms* effect their ascension. This, because the combination and ingrowth of the essential types of form on the essential plane conditions the outgrowth of like es-

senees into more and more complex forms on consecutively more external or higher planes as their correlatives.

The innermost and the outermost are the same essential types of foree; but, while there is but one innermost or essential plane,—*the unity of the ultimate counterparts of form*,—the complex or eulminate planes are as endless as the inevitable transpositions of ultimate types.

14. By accepting form and motion, or the static and dynamie motive power of things, as the all in all of being and doing, we at once perceive, that if the earth-sphere *is* what it *is*, and *does* what it *does*, in virtue of the counter-spaial eondition and counter-spherical position of its co-equivalents of nuclear and atmospheric substance, which determines, henee *is*, the being and doing of its interforms, the same genetic proeess, or eombination of mechanical powers, must be operative in the evolution of all forms, whether objeetive or non-objeetive to human sense; differencee in eomplexity being differencee in the numerieal repetition of their essential germs. The meehanieal powers of nature are self-adjustable on the essential plane. This, because every ultimate atom within the nuclear department of a form of foree, or sphere of gravity, has its counterpart atom in the atmospheric department, *in the sense that the divergent elasticity of the former is directly pitted against the convergent elasticity of the latter.*

The assumption that the essences of every form, all alike being cellular, which tend from its cell-eentres and from its culminate centres outward, are counter-typal to those whieh tend toward its eell-eentres and

toward its culminate-centres inward, is based upon the perception that the constituent strata of the form *are those counter-typal essences combined as complex cellular forms.* Each interform is complexed in accordance with its status from the essential plane of formation by the inbirth of the essences constituting its prime counter-types within its prime embryonic vesicle; the vesicle being, *per se*, what they constitute. The higher spherical position, or greater spaciality of the aerial stratum, compared with the earth's surface-stratum, is the wherefore that its essential substance is more minutely comminuted, and its elements correspondingly more mobile. The assumption that the manifestation of the intrinsic vitality of substance is conditional is based upon the perception that its primordial counter-elasticity, or the basic and super-basic forcitiveness that underlies and overlies all effects on every plane, is, *per se*, its spacial and timal conditions *expressed as its inherited motive tendencies.* Each form, in virtue of being made up of atoms moving toward each other, thence conjoined as atomic units,—each counter-half (the nucleus and the atmosphere of the twain-in-one) retaining intact its preconjoined tendency,—is, atomically, *those two tendencies* so equilibrated that the counter-halves of each atom move alternately toward and from their respective sources of nutrition in unison, as one form of essential force, in like manner as the earth and its atmosphere move in unison as one complex form of force alternately toward lower and higher strata of the solar sphere.

The essential motive power of the earth-sphere *is the correlation of the counter-tendencies of the counter-halves of its units of force that make up the complexity of its*

interconstituent forms, the sum of whose being and doing is *per se its static and dynamic motive powers*.

15. The great mystery of essential or soul power is revealed in the self-evident fact that there can by no possibility be a point within the area of a sphere that has not its counterpoint; and in the correlative facts that no two ultimate atoms can occupy the same point at the same time, or cease to occupy two points at all times; and that the times of the transition of atoms to and from these counterpoints of space are necessarily counterpoints of time, hence rhythmical.

It matters not how near or how remote the atoms occupying these eternally fixed counter-spherical points, they are motorially responsive, each to each, *ever and for ever*. In virtue of the repetition of these essential harmonies within every interform constituent to nature's organism, one and all are ever and for ever in harmony with their conditions. And, however inharmonious their sensible qualities consequent upon inharmonious conditions, *the intrinsic harmony between the essence and substance of being and its spacial and timal conditions is nature's guaranty of ultimate harmony of expression*. It is the number of directions *whence*, and the times *when*, a form receives its nutrient essences, that determines the points of space and time *where and when* they combine as interforms by the equilibration of their counter-tendencies. Each essential germ being an axis of motion, the complexity of a form is proportional to the number of essential motors intercomplexed as complex motive centres. The fact that the apparently formless contents of the ovum in question become a complex form is self-evidence that the essences involved were so modified by previous conditions as to

be adapted, under a resumption of like conditions as regards the supply of heat,—the ultimate of nutrition,—to become likenesses of the specific forms within and through whose organisms they were gestated *in transitu*. Taking it as granted that the contents of the embryo-ovum are the counter-halves of the same specific type on the essential plane, it is readily seen that the contents of the food-ovum, in virtue of being the essences of the elements constituting the earth's sub-surface and super-surface strata combined as the elemental and complex forms constituting the maternal organism, are the counter-halves of these strata on the essential plane, which, in becoming inborn as nutriment, within the embryo chick, and developed up to the female plane of maturity, become the mediate matrice of its post-ovum development.

The perfected chick not only represents the counter-sexual fecundity of both its parent forms unitized on the female or immature department of the mature plane; but its essential constituents, or embryo elements, in virtue of being the fruitage of their every elemental spherule, inherit the same counter-elastic tendencies, the very forces in every minutia necessary to its out-growth up to their matured status.

During its post-ovum development it continues to receive through its surface-pores the same needed quota of external essences from every direction as during incubation. But, the essences condensed as their bases having become exhausted, they must henceforth be received into, thence disintegrated within, its internal organs prior to their absorption and combination with their super-basic counterparts.

The essences constituting the mucous and serous

layers of its germinal membrane, between which the vascular or bronchio-sanguiferous system is formed, being the innermost and outermost of the food-ovum, the pores of the inner surfaces of its entire vascularity are the organs through which its internally-received nutriment is atomically absorbed; and those of the outer surfaces, the organs through which its centre-tending nutriment is assimilated atomically.

"While these layers are becoming distinct as the prime strata or circulatory systems of the embryo, and the folds of the serous layer are rising up and closing over the vertebral groove, and the ventral, cephalic, and caudal folds are closing around and under it, separating it from the food-yolk, except at the umbilicus, that portion of the serous layer which surrounds its area of germination rises up on either side in two folds; and these gradually approach each other, at last meeting in the space between the general envelop and the embryo, and thus forming around it an additional investment.

"As each fold contains two layers of membrane, a double envelop is thus formed; of this, the outer lamina, termed the 'choron,' adheres to the general envelop; whilst the inner, termed the 'amnion,' remains a distinct sac." The interspace between these laminae is filled with amniotic or aerialized water. As the basic germs of the pre-specific types of all air-breathing animals are water-breathing, the process by which the embryo chick becomes transformed claims especial attention as a general exponent of the principles involved.

In the first place, the essences of the embryo in following the functional tendencies inherited from their

parent elements are to the chick's organism what those elements were to the parental organisms.

Hence, in the evolution of an air-breathing animal, the "allantoin membrane—its incipient aerial stratum—sprouts out from the urethral opening, which, during fetal gestation, lies under the nasal opening, both being continuous with the middle or vascular layer, thus representing the outgrowth of the aerial stratum from the aqueous stratum. Taking it as granted that the process by which the contents of the successive stratifications of the solar atmosphere to which its planet-spheres are indigenous became discreted from co-rotivity with the sun's surface while in a condition similar to that of Saturn's rings, is repeated in the discretion of like contradistinctly rotating stratifications within the earth's atmosphere, we assume that we have a clew to this process in the process by which the different strata, or systems of circulation, are developed in the embryo chick.

By regarding the two haloes of the food-yolk of the ovum as the representatives of the earthy and aqueous strata, and the two albuminous layers of the white, a portion of which is introverted as its central sun, or sunward hemisphere, as the representatives of the aerial and super-aerial strata, we recognize the space between these folded-in albuminous layers below the air-bladder as the ventral surface of the future chick, the cords of these layers being the poles of this inter-repeated earth-sphere.

16. The presence of a ventral membrane indicates that the animal belongs to a species that is not literally anastomosing as a whole, all animals being such as regards their systems of circulation. All asexuals are

necessarily in this condition, whether single and coiled, or in chains like certain polyps. This principle, which is positive proof of independent vitality, is needless in its efficiency.

Not only do the roots and branches of the afferent and efferent vessels of each system anastomose with each other, as do the counterparts as wholes, but the sanguiferous system anastomoses with the alimentary and lymphatic systems in its culminate capacity. That is, a portion of the refuse matter from the alimentary system is absorbed by the roots of the abdominal veins, and a portion of the refuse of the lymphatic system by the roots of the renal veins; while the refuse from the sanguiferous and cephalic systems passes into the alimentary from the bronchial and nasal tubes. The gestation of the young of mammals is a species of anastomosis, in the sense that their prime pre-natal and post-natal nutriment received from the *corpus luteum* and *mammæ*, or breasts, is refuse, like all intermediate nutriment, as regards the maternal organism. The roots of parasites are moulted at the outlets of the efferent vessels of the forms whence they absorb their basic nutriment. The earth itself is nourished basically by absorbing the vital essences latent in its dead forms and in the refuse of its living forms. Hence, in accordance with this process, we find the allantoin membrane, the aerialized stratum of the nascient chick, sprouting out from the efferent vessels of the alimentary and lymphatic systems at their culminate points of excretion, thence growing around the embryo between the folds of the serous layer of the reflected germinal membrane; their common point of meeting being on its dorsal surface between the lungs.

This outer half of the sanguiferous system is functionally male compared with the inner half that sprouts *in* from the afferent vessels of their common parent systems at their points of anastomoses with their efferent vessels. While the points of culminate anastomoses between their parent systems—the lymphatic being functionally male, and the alimentary female—are at the anterior and posterior extremities of the embryo, the culminate points of anastomoses between the male and female departments of the sanguiferous system are within the cutaneous and pulmonary air-cells.

These facts are the bases of our assumption that animals possessing true lungs, or an introverted aerial stratum, became incipient contemporaneous with the incipiency of the aerial stratum between the strata of surface and meteoric water; the strata of each stratification being intertypes of the strata of stratifications that make up the earth-sphere.

17. In proof that the outgrowth of the chick is the ingrowth of its outer strata of subsistence in miniature within its spaciality, we find the general flow of air immediately above the earth's surface to be *from* the polar regions *toward* the equator, from either side of which it is forced upward by mutual hemispheric repellence, thence flows back poleward from increasing super-pressure, thereby forming a lower and an upper current.

We recognize these bi-equatorial currents as prototypes of the lower and higher laminæ in the folds of the scrous layer of the embryo chick's germinal membrane that rise up on either side, thence close over the spinal groove.

Being mutually impregnated by each other's counter-

elastic empyreal fluids, these opposing polar currents of air are not only forced to ascend perpendicularly; but on meeting and exchanging their ex-centre-tending empyreal fluids for the centre-tending fluids from higher and colder regions, thereby being forced poleward, they leave a groove-like space between their equatorial rever-sions, which becomes filled by more subtle essences converged from superjacent strata.

Assuming, for reasons already given, that the strata upon whose essences the earth's surface-forms subsist are in process of development as a contradistinctly rotating stratification, we recognize this groove-like interspace — the receptacle of the earth's most expanded essences, counterparted by super-aerial essences correspondingly condensive — as the basis of its nervous system, — *its spinal axis*.

Hence we assume that these bilateral currents of empyreal substance are the bases and super-bases of the counter-currents of air. The assumption that this stratification is the homologue and prototype of the germinal membrane of air-breathing vertebrates *in embryo* is based upon the perception that these upper bilateral air-currents, which flow indirectly poleward, tending gradually toward the earth's surface, become more and more condensed, until, on reaching their polar limits, their elastic tendencies are diametrically reversed, whence, in virtue of their *acquired* expansibility, they flow back equatorward as the earth's surface-currents. By regarding the empyreal grade of essences as the vital fluids of these air-currents, in the sense that their continuous flow is undisturbed by local disturbances in the denser grades, we perceive that they actu-ally move in the same directions as do the fluids of the

motor and sensor nerves bilateral to the spinal cord of vertebrates.

Their increase and decrease in density are due and proportional to the decrease and increase in distance from the earth's equator, its acme of superficial velocity. Being developed between them, the earth's surface-forms inherit its spinal axis, its equator of centrifugal force, and also the spinal axes of its atmosphere, its equators of centripetal force. In our attempts to show that the evolution of the allantoin within the amniotic sac of embryo air-breathers is intertypal of the evolution of the aerial stratum between the earth's surface-waters and the region of meteoric water, we are forced to widen our range of investigation beyond what a treatise purporting to be a general survey of natural phenomena warrants. But having attempted it, and perceiving that we can neither do our subject or ourselves justice by a cursory view, we purpose to follow the lead of natural inheritance, preferring to be tedious rather than lacking in perspicuity. We might cite the investigator to the rings of Saturn, as proof that atmospheric substance, objective to the sense of sight, can and does rotate above and contradistinct to the solid surface of a planet; but the *hows*, the *whys*, and the *wherefores* are indispensable to a conception of the principles involved. And perceiving that the principles causative to the evolution of nature's forms and forces are the intrinsic and inherited tendencies of the essence of substance involved in its constitution, our first attempt will be to ascertain, if possible, the *how*, *why*, and *wherefore* of the essential tendencies of substance by and through what its objective aggregations reveal. One of the most striking revelations is the periodic

extinction of the earth's surface-forms, each stratum of which must have had its eulminate species, in like manner as the human is its present eulminate speeies: hence our assumption, that it is the repetition of their embryo-forms in the order of their ripening that constitutes the suecessive sections of the vaseular systems of the human organism. The self-created primal world of the human ego being a stomaeh, the sum of their suceessively created stomaehs, it is just the matrice needed to mould the potencies of the constituent substanees of their suecessive organs in the order of their needed efficiency.

In accordance with the principle of successive repetitions, the first organ *in-created* is of neessity a *fac-simile* miniature of this outermost stomach, between which and the innermost stomaeh the entire organism is built up. Cilia for the imbibition of external nutrient essenees being the next organs needed, this inner stomach, like the outgrowing organism, becomes ciliated. These introverted and extroverted cilia, or prime protozoan forms, are repeated on every sueeessive section of its afferent and efferent vessels as the male and female matrices of their inter-combining elemental germs. As these seetions decrease in number centre-ward, in the ratio the numerical outward bearings of the lessened number incrcase, each more interior section, like each later species, is an equilibrium of the plus and minus maturity or mobility, and minus and plus eomplexity, of its predceessors. This is the wherefore of the combinability of the mechanical powers involved in the animal series. There can be no "missing links," because each is a eulminate form, in the sense that the stratum whose mobility and spherical status it represents is *an indispensable organ of the earth-sphere*.

The mechanical principles are more clearly revealed in the movements of the nervo-osseous systems, especially in the increased number of limb-movements in the ratio of their lessening number. All the bearings expressed in the movements of myriad-limbed animals are expressed in those of four-limbed animals. The fact that every blood-vessel is attended by a nerve, and also by a lymphatic below the brain, is the ground of our assumption, that nerves are intertypes of the rays of empyreal fluids that are continuously descending from and ascending to the super-meteoric region ; and that lymphatics are intertypes of the invisible rays of aqueous vapors, through which empyreal fluids are conducted from the meteoric region to the earth, and *vice versa*.

An extension of this principle of repetition licenses the inference that the fluids of this super-meteoric region correspond functionally with the nervous fluids of the human brain, which is *above* the range of the lymphatic system ; and that those forced down therefrom upon the earth's equator, between its bilateral and mutually repellent air-currents, and whose centripetal momentum, when contacting with the earth's superficial momentum, causes their bilateral deflection, are the functional correspondents of the spinal cord and its bilateral sensor-motor nerves.

CHAPTER VII.

1. THE discovery that certain substances, termed "para-magnetic," assume the position of a magnetic needle when suspended between the poles of a magnet, while other substances, termed "dia-magnetic," assume a position at right angles thereto, and that, if hammered in the direction of their poles, their magnetic properties are reversed, is a clew to the wherefore that the magnetic needle tends toward a perpendicular position on nearing the magnetic pole. It clearly indicates that the earth-sphere's atmospheric spherules, like itself, rotate at right angles to their common centre; hence that those on the plane of its magnetic equator rotate at right angles with its magnetic axis, and those on the plane of its magnetic axis rotate at right angles to the plane of its magnetic equator; while those on intermediate planes rotate at intermediate angles. If, on the principle of repetition, these spherules have the same empyreal currents as the earth's atmosphere as a whole, varied in accordance with their spherical conditions respectively, the *necessity* of their para-magnetic and dia-magnetic functions is revealed.

When we take into account, that, directly these atmospheric spherules are atomically staticised upon the earth's surface, they are forced to revolve at right angles to its

axis of rotation, regardless of their priorly inherited atmospheric rotations, it is readily seen that the earth's radiating essences inherit both their static and their pre-static tendencies, modified by the structural proclivities of the forms to whose elements they are fruitful. Hence, when combined with later descending atmospheric essences as nuclei of new spherules, they are motorially, plus complex compared with their atmospheric counterparts. And the divergent force of the central nuclei is the exact counterpart of the convergent force of the super-central nuclei, whether nucleated and volatilized as the earth and its atmosphere as a whole, or as the nuclear and atmospheric organisms that become its internal organs by the inter-combination of its counter-mature elemental germs.

Experiments clearly prove that thermal and gelid rays and also light and dark rays, assumed to be diverging and converging lines of empyreal spherules, move in straight lines: hence, when meeting in direct opposition above the earth's surface as its direct and reflex rays, their combined tendencies force them to move in mediate direction as the soul-force of its upper and lower air-currents, and counter-tides of water. In studying their spacial and timal *conditions*, we at once perceive that the tendencies they thus inherit are just what render them combinable, and also effect the transitions and meetings of spherules of different polarities and meridionalities at the very points of space where their *forms* of essential force are needed by the earth-sphere as a whole. Those at the earth's axial poles are associatively static and magnetically dynamic; while those at the magnetic poles are magnetically static and associatively dynamic, in accordance with the earth's superficial

velocity at their respective areas; their combinability being proportional to their disparity in freedom to move.

2. The fact that actual fire is forced out of solid, aqueous, aerial, and super-aerial bodies by sudden condensation, proves that all denser elements are permeated by empyreal elements; while the fact that every grade of substance is expansive in the degree it is condensed, and is condensive in the degree it is expanded, and that the heat and cold evolved during these spacial changes are proportional to the time involved, proves conclusively that *space* and *time* modify the motive powers or elastic potencies of essential substance; which fact is self-evidence that substance, space, and time are not only an inseparable unity, but are, *per se*, FORCE, FORM, and MOTION.

The earth's decrease in superficial velocity from either side of the equator poleward equals the decrease in velocity of its opposite meridian hemispheres centreward. As this is in the ratio of decrease in space in both these directions, and also the inverse decrease in space above its surface meridionally, the very directions in which in the aggregate there is a like decrease in heat, it is self-evident that the nuclei of the spherules involved decrease in rotivity or sensible heat, and increase in expansibility or latent heat, in the degree these nuclei become coalesced below, and comminuted above, a mediate degree of density. This established fact corroborates our assumption, that the substance of the atmospheric or male department of a sphere at the outmost limits of its elasticity is as powerless to rotate atomically from lack of fulera, or excess of space, as are the atoms of the nuclear or female department at the inmost limits of their elasticity, from lack of space, or

excess of fulera. This, in turn, establishes the fact that the circulation of water and air bilateral to the earth's equator is due to the equal but opposing elastic force of the co-equivalents of atmospheric substance condensed below and expanded above a medium density. Not only does the rise of heated air within the torrid zone produce the vacuos that induce a flow of air in its rear from both poles ; but, as it gradually cools by combination with the cooler air from higher altitudes, it is deflected poleward from both sides of the equator ; thence, when it reaches the earth's surface at its highest latitudes, its expansive force under corresponding super-pressure is sufficient to force back as flood-tides the waters of the whilom ebb-tides that tended diagonally poleward. Hence we assume that the super-basic motive power causative to the earth's diurnal or lunar tides, its annual or solar tides, and its *extra-solar* tides, during an equinoctial or platonic year, are respectively the counter-forcitiveness of the plus condensed perpendicular direct and reflex rays of the moon, the sun, and the sun's sun upon its surface correlated with the counter-forcitiveness of their minus condensed oblique rays at opposing latitudes on intermediate meridians. As the force of the *extra-solar* sun's rays is repeated in that of the *intra-solar* sun's rays with a frequency proportional to the latter's lesser quantity multiplied into its lesser distance, which force, in turn, is re-repeated in the moon's rays in the same proportion, their alternate plus and minus pressure upon the earth is necessarily rhythmic.

If the earth-sphere, as is assumed of all forms of force, has outgrown, by the inter-repetition as its more and more interior organs of centrifugal force, its pater-

nal and maternal suns, whose earlier and later rays in combination constitute it what it is, then these *extra* and *intra* solar rays are represented in its interforms, and their plus and minus resistance, in being reflected from the earth, counterbalances the pressure of their successively later rays.

In accordance with this law, we find these suns repeated as the spleen and liver of the earth's culminate species; and the re-active force of their fluids upon those of the alimentary system—their representative earth with its representative moon, the pancreas—is basically causative to the outflow, or flood-tides, of every species of fluids, and of every outreaching motion in and by the human organism; while their later rays are the super-pressure causative to the inflow, or ebb-tides, of these fluids, and of every prehensile motion in and by the organism. And we further assume, that the power of the earth's animal organisms to move in different directions is consequent upon the various degrees of pressure by the earth's atmosphere upon their atmospheres, which each repeats with a frequency proportional to their quantity and complexity of movement, modified by their maturement, or freedom to move; and that the movement of glaciers, which include the products of different zones, in different directions toward and from the equator, is, and ever has been, the result of corresponding changes in the pressure of the rays from its counter-parent suns upon the earth's atmosphere during its annual and its apsidial years, modified by its internal lunar rays; their angular acuteness and permeability being proportional to its increase in distance therefrom.

3 If these tendencies inhere in the substance of the

spherules that constitute the earth's surface-forms, varied in accordance with their positional conditions, then the tendencies of the currents of each, whatever its size or shape, are to assume a *spherical form*.

This accounts for the self-divisions of a magnetized wire into a series of magnets, the distance between the counter-poles or "breaks" of which is always proportional to the thickness of the wire, as is readily shown by sprinkling iron-silings on a paper above it. This, in turn, accounts for the greater tenacity, or prehensibility, of a cable made of many small wires, compared with that of one large wire equal in quantity. This, because the magnetic currents on the central nuclei, and also on the super-central nuclei, of the earth's spherules, are repetitions in miniature of its own aqueous tides, which, as we purpose to show, move diagonally poleward and equatorward on its opposite meridian hemispheres in continuous alternation; while their aerial counterparts flow in discrete lines, as lower or equatorward, and upper or poleward, currents.

These self-insulating *surface-currents*, including their atmospheric counterparts, are eternally intact as dividing lines between individualized or contradistinct existences on every plane of complexity and maturity: hence the complexity in movements by forms of substance is proportional to the minuteness of their nuclear cells and atmospheric spherules, because of the increased number of "breaks," or points of mutual repellence, in their empyreal currents. It is evidently in virtue of their prior spherical positions or spacial conditions, that certain mineral spherules crystallize in prolate forms, and certain others in oblate forms. But the fact that two sections of the same metal, of the same

size and shape, if hammered in directions at right angles to each other, one will be para-magnetic, and the other dia-magnetic, proves clearly that it is the prolation or oblation of the constituent spherules or crystallites, that changes their rotary directions by increasing or decreasing their density latitudinally to correspond with the differences between the earth's polar and equatorial diameters.

4. It is the disparity between the currental tendency of the electric fluids on the earth's surface, and of the magnetic fluids above it, in consequence of their spiral descent toward, and ascent from, a revolving globe, that causes their flow equatorward and poleward. The expansion of those at the poles forces the less and still less condensed fluids equatorward.

At the maximum of superficial velocity, these bi-equatorward currents are mutually repellent, because the spherular nuclei involved are revolving in the same axial plane with equal force, hence are forced perpendicularly upward until counterpoised by descending spherules whose nuclei are revolving in the same meridian plane with equal force. From the equatorial plane these currents, in virtue of exchanging their counter-tending and mediately rotating empyreal nuclei for those of elements above and below their altitudes, effect their flow poleward, during which their axial and meridian planes become reversed equatorward; their prior flow equatorward having been effected by exchanging their mediately rotating empyreal nuclei for those above and below their altitude, whose combined elasticity was in that direction.

Inasmuch as there is a continuous increase in spacial disparity between conjugally-mated or counter-spheri-

cally conditioned atoms, spherules, strata, and spheres, and strata of spheres, there are and can be no such thing as “dead points” within the sphere of infinite being.

This, because the nuclear equivalent of each, relatively regarded, has but one axial or latitudinal, and one equatorial or longitudinal plane; while the atmospheric equivalent has two axial and two equatorial planes, the poles and centres of which continuously revolve around, above, and below the mediate latitudes and longitudes of the poles and centres of the former; the difference in hemispheric range between those of the earth and those of its atmospheres being twenty-three degrees and a half. By regarding the sun’s perpendicular and its most oblique inter-tropic rays, which articulate diurnally with the earth’s axial and equatorial planes, as its atmospheric equators, whose centres are bilateral to its equatorial centre, we perceive that they are prototypal of like equators within the atmospheres of its vertebrate animals, and that their injectile force articulates with the projectile force of their spinal axes at every step, in virtue of the reflex elasticity of the atmospheric essences injected to, thence reflected from their atmospheric centres bilateral to their spinal centres midway between their anterior and posterior limbs; their combined direction being coincident with that of the essences projected from the spinal cord through its efferent nerves. That is, the alternate plus and minus pressure of these perpendicular and oblique rays upon the earth’s equatorial rays, which procreates the axial resistance necessary to effect its diurnal rotations, its axial strides, is prototypal of the alternate plus and minus pressure of like atmospheric

forees upon the spinal axes of vertebrates, whieh pro-
create the counter-movements of their limbs during
locomotion. The eonditions of its empyreal or nervo-
vital spherules being the condition of the earth-sphere,
inter-repeated in accordance with their spherical posi-
tions, it is necessary to examine them in detail, even
though it force us into the depths of astronomie and
ehemic scienee. This, because they are the agents
whose variously-modified elasticities effect the incipi-
ency, the growth, and differentiations in the forms and
funetions of every entity of nature, from simple ehemic
synthesis up through every variety of inter-spherical
compliation. Under its ever-changing spaial eonditions,
one-half of the earth-sphere's constituent spherules —
those from the midnight point or positive meridian
pole, to the mid-day point, or negative meridian pole —
are condensing, in the aggregate, in the ratio of de-
crease in space toward the centre of the solar sphere ;
while those from the latter to the former point are ex-
panding in the same ratio.

These changes affect its axial revolution as a whole
during its descent from and return to its aphelion
meridian across its perihelion meridian. Not only these,
but corresponding changes are moulding their motions
during the axial and orbital revolutions of the solar
sphere and of every other ensphering sphere. The
repetition of this motive principle is necessarily endless,
because the result of the *spherical form of gravity which
determines the momenta of substance in its self-conditioned
completeness as the content of endless space.*

And what is this motive principle but the *endless life
of essential substance?* And what moves our planet-
sphere but the elastic vitality inherent in its essential

substance in its self-conditioned completeness as a *part* of the omnipotence of Infinite Being? Being *parts* of this part, is it possible to obtain a higher conception of the *living principle* in any of its interforms than that which is immanent in the essential constituents of each?

To the true student of nature, who never forgets their *present* existence, substance, space, and time are the essentially inseparable trinity of force, form, and motion, unitized. The *eternal life* of things is self-evident, because everywhere and forever self-revealed in their being and doing. His ideal of the endlessness of space is obtained from the forms and motions of the orbs within it. He *knows*, "transcending experiment," that this unity is endlessly extended, because the existence of substance in form necessitates the existence and efficiency of a motive force, static and dynamic, adequate to effect its expression as *forms of force*. The incessant rotation and revolution of these orbs reveal the spherical form of gravity, which, in turn, reveals the utter immobility of space as the foci and superficies on the dial-plates of time, as measured by their transitions.

We take especial exception to the popular assumption that the so-called Finite cannot comprehend the Infinite, on the principle that a whole is greater than a part. There is and can be no such thing as contrast between a whole and a part of that which it is. It is not a whole, if but one of its ultimate constituents be subtracted. Each ultimate atom is eternally complete in itself *in being constituent to the Infinitude of Being*.

The assumption is akin to that which questions the Omniscience that conditions the existence of vicious and venomous animals and of men with like traits. Were not the essential representatives of all man's com-

mensal forms constituent to his organic powers, he could not *be* what he *is*, or *do* what he *does*. He is of necessity what the essences of the forms of life about him which he has assimilated as nutriment have become within him, the sum of the motive forces of which is his *essential qualities*. His perception of the *necessity* of the self-existence and self-efficiency of this Trinity in Unity *is per se a conception of Omnipresence, Omniscience, and Omnipotence*, — a conception of that of which he is part.

5. The assumption that life is the eternal tendency of substance toward equilibrium is based upon the perception that the opposing subdivisions of each form or sphere are essentially counter-forcitive, and under normal counter-pressure are equally persistent and resistant in the sense that each projects its momentum obliquely forward in projecting its fruital essences obliquely *across* its equators of motion in continuous alternation. For example, during the axial rotation of the earth, and during the rotation of the nutritive fluids of all its surface-forms, the two polar hemispheres of the former, and the two sides of the latter, are alternately projecting their essential germs across their longitudinal axes. Not only this, but there is a like forced exchange between the sunward and anti-sunward, or lower and upper hemispheres of the earth, and between the ventral and dorsal hemispheres of its forms, and also between their diagonally-paired semi-hemispheres. We have a clew to the extension of this principle of mutual impregnation by the opposing subdivisions of a form in the actual subdivisions or prime segmentation of embryo animals, subsequent to the longitudinal cleaving of the “germ-yolk,” which is apparent in all at maturity,

as the spinal axis or median line of forceitiveness. All modes of locomotion being compounds of the serpentine and the vermicular, the earth's meridian subdivisions are necessarily repeated in the segmentation of all locomotive forms.

The co-equal bi-polar forceitiveness of each form is its bi-sexual or self-impregnative power, in virtue of which each becomes self-locomotive, as well as self-motile; and is also the provisional power by means of which the lower or female hemisphere grows its upper or male hemisphere.

This is prototypal of, as well as provisional to, the gradual growth of male organisms; primarily a simple organ within the upper hemisphere of the female of its typal species.

Hence we assume that articulates whose lower hemispheres are outermost during their embryonic development, the median cord or cords being located on the ventral surface, are the basic progenitors of vertebrates; the former becoming incipient on the earth's sunward surface prior to its axial rotation westward, the latter on its opposite surface subsequent to its axial rotation eastward. Now, if there be, as we hope to show, a traceable analogy between the *modus operandi* by which the earth-sphere and that by which its free-moving animals move through space, their process of development must needs be analogous.

Every form of life, like the chick *in ovo*, builds itself up by assimilating the essential fruitage of external forms, which, having been ripened as such by conformation to their respective modes of moving within their parent forms, are adapted to re-express the same modes of moving when assimilated as nutriment by the com-

plex embryo as *its* essential constituents *in embryo*. As is readily seen, it is the fruital essences of our entire stratification or world of forms, that become the essential constituents of its every interform. Those constituting the primordial cell of each are simply remoulded by transmission through its proximate or specific parent forms: those involved in its subsequent embryonic growth, whether or not transmitted through the maternal organism, are transmitted thereto as the needs of its structure demand. The earth-sphere as the sum of its inter-organs being a specific organ through which the essences constituent to the universal organism are moulded *in transitu*, its primordial and nutrient essences must have been similarly moulded and transmitted. Now, taking it as granted that the solar sphere as a whole, and its inter-spheres as wholes, are self-impregnative in the sense that the *spaciality* of the hemisphere nearest the sun is functionally female, and that of the opposite hemisphere is male, regardless of the continuous changes in the spherical positions of the *substance* of each, we at once perceive that these positional changes are analogous to those effected through the agency of the circulating media of animal organisms, all of which revolve around their own nuclear centres, and also above and below, and bilateral to, that of the organism as a whole through the *injection* and *projection* of their nervo-vital essences into its every spherule, nuclear and atmospheric. The fact that our sun is at the perihelion foci of the orbits of all its planet-spheres is our license for assuming that *its* sun is at the perihelion foci of the orbits of all *its* primary systems of interspheres; the same being true as regards the focal centre of every more embracing sphere.

If so, then the bringing together of the essences fruital to all the opposing subdivisions in each is effected by their axial and orbital revolutions, including the revolution of the substance of their atmospheric strata, in like manner as those fruital to the opposing subdivisions of animal forms are brought together by the revolution of their blood with its attendant substratal and super-stratal fluids.

The genetic effect of this, in the case of the latter, is the secretion of their seminal fluids within the dual-paired organs of generation in each, which are relatively plus and minus spacial in both sexes. In the case of the former, the specific generative fluids of each sphere are secreted in the upper and nether hemispheres of its innermost stratum, the dividing line between its counter-forcitive equivalents of nuclear and atmospheric substance. Hence the assumption that the substance of our strata of subsistence is in process of individuation as the latest specific offspring of the earth and its atmosphere; and that, in like manner as the layers of the "germinal membrane" of the chick *in ovo* so infold it, that, during the absorption of its fetal nutriment, they *become its systems of circulation*, so these strata were and are folded in as the stratal systems of circulation in each new satellite during its stratal gestation in order to fit it for a separate existence. It must be borne in mind, that, during the chick's ovum gestation, every particle of its store of nutriment is comminuted to its ultimate minuteness, and atmosphered by the counter-tending empyreal essences forced within all its opposing subdivisions, which aggregate in accordance with the typal tendencies of its prime counter-germs. That is, the thermal fluids involved in

the hatching are the super-bases of its essential organism, those latent in the contents of the ovum being the bases. Thenceforth, under normal conditions, its vital functions are self-sustaining.

The same is necessarily true of each spherical and interspherical individuation. By assuming that our solar system became incipient between its sun and a higher stratification to which its then latest solar system was indigenous, and that our planet-sphere became incipient between *its* sun and the stratification of solar gravity to which the planet Mars is indigenous, we can from the license afforded in the homologies and analogies of nature, account for the sustenance of the solar system, and, on the principle of repetition, account for the sustenance of its interspheres and their interforms, the sum of which it is: otherwise the *how* of the sustenance or incipiency of all alike is utterly unaccountable.

By accepting this and other correlative assumptions as truthful, then the counter-spherical positions and counter-spacial conditions necessary to render the essential substance forced into the opposing subdivisions of the solar sphere counter-tending, and to effect their aggregation within its innermost stratum, are accounted for. We will now suppose, that, during the incalculable ages involved in the combination of these counter-conditioned fruital essences as the essential germs of our planet-sphere *in embryo*, the relative positions of the sun and Mars were similar to the relative positions of the earth and the moon during the incipiency of the earth's latest specific offspring, our world or strata of subsistence.

In accordance with the law of Kepler, that the times

of the revolutions of the planets are proportional to their distance from the sun, and also in accordance with the assumption that the elasticity of essential substance as force is absolutely invariable, we perceive that the orbital velocity of the then existent planets was correspondingly greater, and their axial velocity lesser, than at their present distances, including the orbito-axial velocity of the sun. This, because in the degree the contents of the stratification within which a planet-sphere is developed increases in distance from the sun—the source of its basic or maternal nutriment—in that degree it comes into more direct communication with the rays of the sun's sun, its super-basic or paternal nutriment, relatively plus mobile and plus mature. The increase in maturity and individual rotivity of each is, therefore, in the ratio the substance upon which it subsists increases in mobility in consequence of its higher altitude. The fact, that, in the development of a cluster of nucleated cells, the nucleus of each new primary cell is evolved from the central nucleus, and that of each secondary cell from a primary nucleus, and so on *ad libitum*, is our license for assuming that the process is an inter-repetition of that by which the nuclei or planets of the spheres that constitute the solar sphere were evolved. If the basic essences of the prime strata or "germinal membrane" of our planet in its incipiency were evolved from the sun, it is readily perceived that the increasing axial velocity of the sun's superficies from its poles equatorward would project the different latitudes of this stratification, or membrane, to altitudes corresponding with the sun's increase in longitude.

And if, like those of the primary planets, the orbital

velocity of the sun was greater, and its axial velocity lesser, than in the present, in accordance with its lesser distance from *its* sun, then the pressure of the solar atmosphere upon this planetary mass was correspondingly greater bilaterally, and lesser perpendicularly. This greater bilateral pressure would cause the bilateral portions of this membrane to curve in towards the sun's equator, and also produce equatorial projections on its anti-sunward surface; while the mutual repulsion between its polar hemispheres would leave a groove-like space along the line of its equator to be filled by higher and more mobile atmospheric gases. A perception of the inevitability of these changes whereby its form became comparatively globular is the basis of the assumption that they are prototypal of the changes in the "germinal membrane" of a chick *in ovo*; which changes are the insulation of the embryo by its complete closure on the ventral surface, during which the dorsal projections form the folds that enclose the spinal cord and those that incase the ribs, and the ventral folds form the alimentary canal.

In order to idealize the earth-sphere as an individual organism subsequent to its complete insulation by its own surface-currents, we must regard it as a specific quantity of pre-organized or cosmic substance, so acted upon by super-pressure during its circlings between the sources whence the basic and super-basic essences which combined as its embryo elements ascended and descended as regarded solar gravity, that it has ever been, as now, adapted to evolve its own basic germs; those super-basic thereto being super-terrestrial. Owing to its rapid revolutions around the sun, because of its nearness thereto, it must have rotated westward axially;

hence, like its maturing animals, it has gradually overcome these infantile conditions.

We must also include in our ideal, that, in like manner as the layers of pre-organized substance that constitute the nuclear and atmospheric elements of the ovum that become the perfected chick are separately incased, so its strata of different elemental compounds were discrete from those external to each, and held together in adequate archetypal positions during their transformation into an incipient, thence into a perfected sphere; and that the empyreal essences necessary thereto were forced in through these incasements from every direction in such proportions as its resistance, the measure of its needs, permitted.

And, in order to idealize its condition as prototypal of the germinal membrane of its complex interforms, we must regard it as outgrowing within its own incasement between the nucleus and periphery of its sphere of evolution below its more mature associates. In seeking to learn the origin of the earth's motions in the present, we must idealize, from what they reveal, the modes of motion transmitted to it from its parental orbs, the sun of its sphere of subsistence, and the sun of that within which the solar sphere subsists, and always take into account its quantitative equivalent of atmospheric substance, of which we know so little.

Taking the principle of repetition as our criterion, we assume that the solar system as a whole rotates axially and orbitally; and that, during its annual cycle, the plane of its orbit intersects the plane of its equinoxes, and that the rays of its sun produce like effects upon it, as a whole, as those produced upon the earth by the rays of its sun during its annual revolutions.

From their incipiency onward, the rays from their relatively paternal or *extra-solar* sun have been refracted from the periphery of their maternal sphere, and converged upon the earth and its associate planets coincident with the reflex rays of their maternal sun, but in direct opposition to their own rays.

In virtue of this, the super-mediate grade of *extra-solar* or male germs is continuously combining and re-ascending with the *intra-solar* or female germs of a like grade at, and from every point within the solar or maternal sphere; while the sub-mediate grade of *extra-solar* or male germs is continuously combining with *intra-solar* or female germs of a like grade at these same points of mutual exchange, whence they descend as the correlatives of the former,—their representatives on the embryonic plane.

This is our ideal of generation, or gestation, in every stage of maturement, whether the plane of conceptive creation be above or below the developing sphere or form. This, because the abstract qualities that combine as the concrete qualities of objective forms are from counter-sexual or correlative sources. Hence, just as their *objective creation* demands that the specific germs involved be moulded within minus and plus areas of space, which become expressed within mediate areas, so their *subjective creation* as mental images is mediate between an inner and an outer source,—the plane of sense-perception and that of sensible expression, the agents of which are functionally female and male.

It is impossible to comprehend the principles of generation, or gestation, only as we regard nature, or the sum of formation, as a sphere, the central sun of which is to its interspheres what our sun is to *its* interspheres.

Thence, regarding the nuclear and atmospheric organisms of each sphere or form of force as co-equally female and male, regardless of specific sexuality, we obtain a clew to the ability of each to generate and individuate co-equal quantities of female and male elemental spherules, or pre-specific offspring on the embryonic plane. Thence, by regarding the ventral and dorsal hemispheres of each as relatively female and male, and their polar hemispheres alternately female and male, or negative and positive, in virtue of their alternate subjection to plus and minus bilateral pressure during equal periods of time, we perceive that the nuclei and atmospheres of their spherular constituents are alternately pressed together and drawn apart during equal periods of time, which rhythmic respiration adds equal quantities of external nutrient essences to their nuclear and atmospheric organisms. Not only does the relative and alternate counter-sexuality of the subdivisions of each condition the growth of its constituent elements, but it conditions and necessitates the parturition of equal quantities of female and male, or plus and minus, condensed elemental germs as pre-specific offspring *in ovo*. The nucleus of a sphere, or a nuclear organism, being on the immature plane, those nucleated within the organs of specific generation are on the immature plane; while those radiated from its superficies are on the atmospheric or mature plane. The motive tendencies which these counter-sexual germs inherit from their respective planes of maturity are toward and from each other in rhythmic periods of time; those gestated within the "genitals" being the nuclear counterparts of those gestated within the ganglia of special sense. Hence, when combined, their elasticities are directly opposed.

This results, not only in the movement of these twain in-one atoms, as such, alternately toward and from their native hemispheres, whence they draw their needed quota of counter-polar and counter-meridian empyreal fluids, but the movement of the median line, or equator, of the entire organism or sphere from side to side of its line of direct advancee is but the sum of their movements for the same purpose.

Germs fruital to the female of a species represent the spacial and timal conditions of the radial essenees or rays of an ensphered sphere; while those of the male represent the spaeial and timal eonditions of those of the sphere by which it is proximately ensphered; the strnctures and funtions of their eommon offspring, like those of subspheres, being intermediate in the sense of being in dynamie equilibrium. In order to comprehend the changes in individual forms on our plane of sensible expression and sense-perception, whieh we assume is a clew to eorresponding changes on planes above and below ours, we must bear in mind that the motivities or funtions of individual spheres of gravity and of their constituent forms of force or organs, are solely the result of an exchange of their empyreal essences during eontaet, whether the eontaet be eontinuous, periodie, or easual; whieh essences beeome nutrient to, or additional constituents of, their respective recipients, thenee re-aet therein in aeeordanee with their priorly-inherited motive tendencies.

All the essential constituents of our planet have been moulded *in transitu* through its atmosphere, hence all alike inherit their pre-statice tendencies,—*tendencies to become atmospheric* by resurrection *seriatim* in reverse order.

This fundamental principle or law of growth must never be lost sight of; otherwise we cannot perceive that the greater puberal maturity of males is the greater maturity of their ex-nutritive or fruital germs compared with those of the female of their species. Reproduction necessarily involves three planes of maturity, which result in three planes of complexity or motion toward, from, and around three centres of motion correlated as three spheres or stages of being,—*the plus and minus mature planes of paternity and maternity, unitized in their offspring on their embryonic plane of maturity.* The counterpoise or counter-atraction of the earth's direct and reflex rays upon our moon at its lesser distance from it is just equal to that of the sun's direct and reflex rays at its greater distance. This, because the disparity between their quantitative equivalents of substance counterbalances the disparity in distance; lesser and greater distance of *origin* being the representatives of lesser and greater *maturity* or *mobility*. Hence the maternal or negative substance is plus condensed and plus expansive in the degree the paternal or positive substance is plus expanded and plus condensive. Disparity in the mobility of essential substance as a wholeness consequent upon its spherical form is *per se gravity*,—its static power. Its never-ceasable tendency to move in the direction of a never-attainable static equipoise consequent upon its intrinsic elasticity, is *per se eternal life*,—its dynamic power. The known elasticity of substance and the known sphericity of its gravitational force is *de facto* a perception of its ceaseless motivity or eternal life, both as *essential force* and as *forms of force*.

The quantitative equivalents of substance, space, and

time, involved in a sphere or form of force, are necessarily correlated. Whatever its distance from the focus of the sphere of infinite gravity,—its absolute status,—or its relative status within any individuation thereof, it must be ever and for ever self-sustaining under its surrounding conditions. That is, the momentum of its substance, its quantity multiplied into its velocity, *must counterbalance its spaciality at its spherical positions, absolute and relative.* To live upon the ex-constituent or ex-nutrient essences of its predecessors, and to mould them *in transitu* as the constituent or nutrient essences of its successors, to follow the former, and give place to the latter, is at once the endless battle of each form for its existence, and for its endless progression in refinement and in complexity of movement.

6. The fact that all forms of substance, whether a complication of vital powers, termed organisms, or a complication of mechanical powers, termed machines, maintain their structural proclivities solely by an involution of quantitative equivalents of force from counter-directions, is our license for assuming that the vital or mechanical powers of our sphere are maintained by an involution of quantitative equivalents of essential substance from counter-directions in which the counter-forces needed are *inherent* in virtue of their prior subjection to counter-spacial conditions or counter-spherical positions during equal periods of time. This counter-equivalence of space and time inherent in the counter-equivalents of ingressing and egressing nutrient and ex-nutrient essences of a living organism, or the impellent and repellent essences of a moving machine, is *per se* their adaptability to substitute each other's spaces and times *progressively.* That is, the expansibility of the

ingressing essences at the acme of their condensation equals the condensability of their successors on the ingressive plane; hence their centrifugal force is the correlative of the centripetal force of their successors from the ingressive plane until their spacial conditions are reversed; the later nutrient essences being at the acme of their condensability when the earlier attain the egressive plane.

The process is identical, whether the mental standpoint whence it is idealized be the surface of the earth or that of a nuclear organism, or the peripheries of their atmospheres. The nutrient essences, whether assimilated by their internal or external pores, are inherently atmospheric, hence become nutrient to their respective atmospheres as earlier and later or plus and minus mobile essential germs, which, by combination with like external germs, successively ingressing within its gravital limits, become their atmospheric spherules. Just as the earth and its atmosphere are the proximate parents of their interforms, so the nuclear and atmospheric organisms of these interforms are the proximate parents of *their* interforms. This process of outgrowth through ingrowth is essentially unceasable in the sense that each nucleation of essential germs grows itself in virtue of its own inherent powers *under normal conditions*. Earlier or less complex animals in maturity, and later or more complex animals in their earlier stages of development, have two main longitudinal veins and two spinal cords. This unmistakably indicates a lesser degree of coalition from lesser condensation of the earth's atmosphere, which necessarily increased in density and pressure in the ratio of its increase in substance.

Not only is this increase in pressure revealed in the coalition of these vessels and cords, but in the coalition of the spinal nerves as the brachial and sacral plexuses of nerves that control the movement of the anterior and posterior limbs of higher animals, assumed to be inter-repetitions of the coalition of the sun's perpendicular and most oblique inter-tropic rays from their highest latitudes north and south of the equinoctial. In our ideal of their genesis the earth-sphere's prime interforms became incipient between the inner and outer layers of its "germinal membrane," constituted of the earlier rays of its paternal sun in process of reflection from its maternal sun, combined with like but later rays from the paternal sun in process of descent toward the maternal sun; these counter-tending rays being now as then its sole nutriment.

In our ideal of their ancestry these rays are earlier and later germs fruital to like forms co-existing within the paternal or ensphering sphere at altitudes within the maternal or ensphered sphere, above and below the altitude of the earth-sphere. In virtue of these ancestral inheritances, the earth's every elemental spherule involves three planes of maturity.

7. Like thermo-luminous spherules, whose objective existence is but a flash as their dynamic essences escape from their ova-embodiments, through which they ascended by combining with those indigenous to more refined strata, so elemental spherules are literally ephemeral, their essential organisms being forced outward and upward from their denser embodiments within the sunward hemisphere of our stratification. While the former ascend to a still higher stratification as the

bases of its elements, the latter, their clemental ova, descend as the super-bases of their successors, which, in turn, become disembodied by a succeeding sunward revolution; thus on and on in endless progression. The ascent of the ripened organisms, and the descent of their ova, are effected by their atomic enspherenec by a super-mediate and a sub-mediate grade of essenees respectively. Hence each new surface stratification is made up of essences fruital, by transmission, to the atmospherie and nuclear organs of past stratifications. More complex radiates and artieulates are evidently the correlatives of their defunct nuclear and resurrected predecessors on the immature and post-mature plagues of life; the mollusea being the common offspring of the earlier radiates and artieulates on the atmospheric plane and their culminate successors on the nuclear plane. In virtue of being the common offspring of all preceding sub-kingdoms, the structures and funtions of vertebrates express all their various stages of maturity or freedom to move, and all their complexities of movement. This law is illustrated clearly in the movements of the secondary planets.

Although equally constituent to both its parent spheres, which culminate as one, yet, the motions of the moon being a eomplexity of those of both its parent orbs — the sun and earth — within the sphere of the latter's range of counter-foreitiveness, its individual motions are plus complex in the degree it is minus in freedom to move. Being built up of the sun's direct and reflex rays concentrated from the periphery of its atmosphere, the earth-sphere's maturity, or stage of development, is necessarily intermediate between that of the solar sphere and that of the lunar sphere, their

common offspring. The latter, being built up of the sun's earlier direct and reflex rays reversed or transmuted as the earth's direct and reflex rays, plus the sun's later direct and reflex rays, is proximately subject to terrestrial gravity; while at the same time it represents the attractions of the sun's sun within the solar sphere, the same being true of every other secondary through which are transmitted the influences of more and more remote ancestral orbs. Being intrinsically germinal, essential substance is simply moulded into these counter-nature or combinable conditions within the generative organs of the two sexes of each species of form. The coalition of the essences of form within internal organs of lessening aggregate spaciality conditions their multiplication by comminution within external organs aggregately more spacial and more eomplex motorially. Their movements in a greater number of directions toward equilibrium involve more frequent reversions of their elastic tendencies by combinations and decombinations, which is, *per se*, their transformations to accord with the more frequent reversion of their spacial condition. This changes the functions of the forms in which they culminate. This, in turn, modifies the latter's ex-nutritive essences, whether nucleated as representatives of their specific structures *in embryo*, or as their mechanico-vital germs of essential force projected to surrounding forms, whose return of an equivalent of *their* essential counter-force *conditions* the external movements of both.

8. In virtue of being constituted of essential substance condensed as forms, forms transmit to their radial essences in reverse order of expression the same motive tendencies in every minutia of directiveness as

those by means of which their essential constituents were brought into combination as form. Being fruital thereto, these essences retain intact their counter-clastic tendency to *return* to their parental conditions *from* the form they enter during contact. That force is immanent in substance is universally demonstrated in the mutual repellence of like conditioned forms subsequent to their momenta of contact, which is purely the *return* force of the essences each communicates to the other.

If the force of substance in its essentiality and in its aggregality is its *elasticity* correlated with its *spherical form*, which correlations are spatially inevitable, there can be no areas void of substance. Neither can there be a limit to the transformation of substance as new essential types. As contradistinct forms involve contradistinct motive forces and definite peripheral incasements, the combination of their excreted essences as their common essential representatives within the inter-spaces between them is inevitable. This, because their incipiency as successive or inter-repeated forms of force, and the continued existence of the parent forms, depend alike upon their *mediate* motive tendencies in counter-directions. While assimilating the counter-mature germs that combine as their growth, these circulating media excrete in return *their* counter-mature germs *when* and *where* needed by the parent forms. All commensal forms, such as subsist upon the same elemental germs, even those indigenous to different strata, *continuously impregnate each other with their excreted essential representatives*.

9. In accordance with the correlative tendencies of its essential constituents, each form continuously assimilates exact equivalents of nuclear and super-nuclear

substance; and, in accordance with the immutable law of compensation, each supplies to nature an exact equivalent of what it receives therefrom *in being bisexual, thereby reproducing continuously the essential types of its nuclear and super-nuclear constituents.*

This fundamental law has been heretofore so completely over-shadowed by the incomparably greater importance attached to the reproduction of specific germs, that the genesis of elemental germs has been entirely unperceived. The beginning of objective formation, which is purely an abstract condition, having reference to a specific plane of sense-perception, is necessarily at the very lowest point of objectivity. Hence each form begins by nucleating its essential types of form, thence grows into objectivity by the aggregation of the counter-conditioned germs, male and female, of such external elements and in such quantities, assimilated as basic and super-basic nutriment, as its genetic conditions determine. These conditions are the size, shape, and number of the ultimate interstices within the parent forms wherein they are developed. These, in turn, are determined by the size, shape, and number of the culminate forms that surround the parent forms, whose essences, when assimilated by them, combine within these interstices as their common elemental offspring.

This is the basis of difference in primal and of differentiation in complex structures. Every form becomes incipient within an area of space just adapted to fulcrate its embryonic motive forces. This increases with its growth by the forcing-in of the essences of surrounding elements, which are as truly their ova as are the ex-nutritive essences of insects *their* ova, which they instinctively deposit in interstices favorable to the

forcing-in of like essences in such proportions as their specific structures require as growth. The fact that four kingdoms of forms co-exist within our strata of subsistence is ample evidence that they are constituted of like elements, but in different spacial conditions, which differences in freedom to move necessitates different proportions, which ultimate in differences in their arrangement as forms. If solid, liquid, aerial, and super-aerial formations, with their variations in quality, are purely differences in the spacial condition of the elements of form within the gravital limits of the complex forms to which they are constituent, then we have a basis from which to calculate the condition and quality of those that constituted our planet-sphere *in embryo*. That is, on the assumption that the essence of substance is homogeneous and intrinsically elastic, and that, under certain degrees of condensation, it becomes objective to human sense; while, under certain degrees of expansion, the same elements become non-objective.

Without modification, the elasticity of substance is non-effective. Without its elasticity, there could be no condensation or expansion, no ponderability or levity, or motion toward, from, or around a centre. In a word, there could be no such thing as motive power or *forms of force*, spherical or otherwise. As substance does exist in forms, some of which are ponderable, others levitable, and others equilibrate, the fact that its motive power is manifest in these three prime directions is established; which fact demonstrates its counter-elasticity and its modifiability. If, in virtue of its elasticity under the modifications of space and time, essential substance becomes aggregated in *complex forms of force* on complex planes of specific gravity,

such as the earth-sphere and solar sphere are known to be, then its elasticity is, *per se*, its life, and the space and time involved in its aggregation are its static and dynamic qualities.

10. Essential types of form, in virtue of being the content of the essential counter-points that make up the sphericity of infinite space, are the wholeness of *static or soul-power*. And, in virtue of their elastic homogeneity as substance, they are adapted to express the wholeness of *dynamic or elemental power*; hence are, *per se*, the all of space and the all of time, the forever inseparable and indestructible soul and embodiment of Infinite Being.

Elements, as such, are forever intermediate as regards inherent tendency between their plus static bases and their plus dynamic super-bases. As spherical nuclei out-form into higher altitudes from their own centres, and simultaneously from the centres of their proximate and ante-proximate ensphering spheres, their surface-essences become refined and differentiated in accordance with their increase in spaciality, and consequent ability to concentrate their fruital essences within consecutively more minute interspaces, thereby conditioning the excentration of quantitative equivalents of essences as their atmospheric counterparts, or correlatives, as regards movement in opposing directions.

Each stratum of a sphere is spacially different from every other, hence conditions the aggregation of essential types different and impossible to any other. As the earth-sphere outformed into higher multiples of spacial points, its fulcral force increased (as now) by the descent of the corpses of atmospheric elements to the earth's surface, all of which were pregnant with the

essenees of elements indigenous to superjaeent atmospherie strata. Forms native to different strata differ in the degree the elements upon whose representative germs they subsist differ in struecture and function. This more obvious faet reveals analogieally the less obvious faet, that the substanee eoneentrated as the sunule of each empyreal spherule, the solar system on the empyreal plane, is the soul or heat-forcee,—the *vis vitae*, interior to the atmospherie nuclei,—its embodiment, through whose motivities it beeomes expressed.

11. As there can be no light without the combustion of hydro-carbons, or the extreme eonditions of substance elementally regarded, we assume, that, as regards predominance, carbon is the basis, and hydrogen the super-basis, of daylight; and as oxygen and nitrogen combine with both, in virtue of their intermediate speefie gravity, hence are the bilateral supporters of the eombustion involved, we have a clew to the process by which their empyreal essenees beeome forced out and inter-combined, thence aseend to higher altitudes, leaving their de-atmosphered spherular nuelci, or defunct nuclear organisms, to deseend to lower altitudes of the earth's atmosphere. In the production of hydro-carbons, whether by natural or artifieial means, the aerial stratum of the compound spherules that represent the combined motivities of our octave of the earth's photosphere is *forced out*. Henee it is the *forcing-in* of the aerial elements between the earthy and the super-aerial elements that causes their explosive deeombination and recombination. When the atmospheric elements involved are forced into direet hemispherie opposition to the sun's rays during the earth's rotation, they are so condensed by their increased nearness to

the centre of solar gravity, that the plus condensive essences of each higher element is forced into each lower element from the super-aerial stratum down to the earth's surface, thereby forcing out from each spherule of each lower element an exact equivalent of plus expansive essences which ascend simultaneous with the descent of the former.

In like manner as the super-central nuclei or planets of the sun's atmosphere attain and maintain their respective spherical positions by means of the orbito-axial rotation of the nuclei of their atmospheric spherules, so these spherules, in turn, attain and maintain their positions by means of the orbito-axial rotation of the nuclei of *their* atmospheric spherules.

However difficult to elucidate, the principles involved are of themselves very simple, because purely mechanical. The sum of the rotations by these spherical nuclei is the sum of the rotations of the nuclei of their inner and sub-inner spherules.

12. By accepting the different degrees of refrangibility and vibratility of the primary rays of color, whose lengths and rotations have been estimated, as miniature representatives of the different altitudinal ranges of the orbits, and different axial velocities of the planets Mercury, Venus, and Earth, we idealize the assumption that the modes of moving by the free surface essences of an object, which sensibly express its color, shade, shape, and size, culminate as its photosphere or representative image.

In applying this test to the elements of our stratification, we recognize them in their combined relations as basic, intermediate, and super-basic, in the order of their decreasing specific gravity.

For example: in combustion, carbon, and its congeners, are the basic fuel; oxygen and nitrogen and their congeners, the intermediate supporting fuel; and hydrogen and its congeners, the super-basic fuel; the flame being continuously insulated by invisible strata of like compounds arranged in reverse order and in reverse spacial conditions.

As there can be no combination between elements without a change in the temperature of their surroundings by the egress or ingress of empyreal fluids in accordance with their spacial changes, these stratial relations are intact in all compounds.

This necessitates a slight change in the chemical terms used to designate the relative position of the elements of a compound. Surface-water being the grand reservoir of negative electricity, and meteoric water that of positive electricity, there is no inaptitude in terming oxygen, the basis of both, "electro-negative," if we but bear in mind that hydrogen, as the super-basis of both, is electro-positive, and also bear in mind that surface-water as the content of a less spacial and more central stratum is, *as a whole*, electro-negative, and meteoric water electro-positive.

While oxygen is the electro-negative element of air, nitrogen being the electro-positive element, and is also associated in minor quantities with nitrogen as the bases of the compound elements of the super-aerial stratum, assumed to be predominantly ammonia, of which hydrogen is the electro-positive element, yet when combined with elements of greater specific gravity, it is electro-positive.

In *binary* compounds the denser associate is electro-negative. In *ternary* compounds the electro-magnetic

force of the intermediate element is comparatively static, or equal in both directions. In *quaternary* compounds the axis of the combined motive force is between the intermediate elements, in the sense that the stratal arrangement of the super-basic elements is in the order of their decreasing specific gravity from their mediate altitude of equipoise; while that of the basic elements is in reverse order, in virtue of which the centrifugal force of the electro-negative or less spacial elements is the counter-equivalent of the centripetal force of the electro-positive or more spacial elements. This is the case with the elements of the earth and those of its atmosphere as wholes, each of which exists in both conditions as bilateral circulating fluids.

13. Hence the rarer element or elements constitute the "super-base," not the "base," of a salt; while the denser element or elements constitute its base, the intermediate element or elements being intermediate as regards chemical or electro-magnetic cohesion. But for this lack of cohesion between the intermediate elements of a *form of force*, or a compound of elemental forces, they could neither combine nor decompose, as they must of necessity do in order to become the representatives of the earthy, the aqueous, the aerial, and super-aerial compounds that make up our outer world. The differences in affinity, and consequent coherence, between the predominant elements that characterize its different compounds, are readily perceived. Those of the super-aerial stratum, predominantly hydrogen and nitrogen, are least cohered; those of the aerial stratum are but slightly cohered, those of the aqueous stratum being more strongly cohered; and those of the earthy stratum the most strongly cohered.

The fact that heat in the aggregate decreases from the earth's surface upward in the same ratio it decreases poleward or downward toward its axis is our license for assuming that heat is evolved from friction between the nuclei of its elemental spherules, and that it decreases in the ratio they are condensed below, or expanded above, a medium density; that is, their comminution from increasing spaciality conditions a like increase in the rotary velocity of *their* inter-atmospheric nuclei.

This internal activity, non-perceptible externally, is latent heat, the vital force by which the nuclei of each spherule of form is cohered as an element of gravitational force. *Per contra*, these empyreal nuclei decrease in rotary velocity in the ratio the elementary nuclei coalesce from condensation. This internal passivity is also latent heat externally regarded. The expansibility or acidity of the latter is the counter-equivalent of the condensability or alkalinity of the former, when subjected to mediate spacial conditions.

When the aggregate spaciality of combining elements is lessened, heat is evolved; when increased, cold is evolved; their descent and ascent being in virtue of the egress and ingress of the empyreal grade of comminuted substance in a volatile state. Their stratal intactility as the compounds of different strata at different altitudes is evidence that each compound spherule is separately incased, and that, at the limits of their expansibility, they combine as a transparent, solid super-base between ours and a higher stratification, the bases of whose stratal compounds are the ascended super-bases of ours, regardless of the forms to which they are fruital, whose structural proclivities they inherit.

The elements of our planet-sphere are all alike com-

binations of the solar rays converging from the periphery of its atmosphere, and like rays diverging thereto from its nucleus, which, in being *reflections* of the former, are correlative forces, the motive tendencies or qualities of each being the mean between these counter-parent forces at their altitudes of coalition and comminution. This conditions the combination of their counter-germs as these elements of form, those of each species being essentially different from those of every other, although strati ally related in virtue of their common ancestry.

14. Although the range of their common elasticity culminates as a contradistinctly rotating stratification, yet, in consequence of the different developmental stages of its constituent elements, and those of the different compounds and complex forms in which they culminate, the nutrient and frugal relations of each stratification, as also those of its every interform, extend from the centre to the circumference of the sphere they constitute. Hence the divergent elasticity of acids, and the convergent elasticity of alkalies, are proportional to the degree their elements are condensed below, or expanded above, their medium density as simple elements. For example, the combination of oxygen, the type of acidity, with hydrogen, the type of alkalinity, as surface-water, is the medium range of their counter-elastic forces, above which medium degree of condensation the intensity of their respective qualities decrease up to the limits of their expansibility, and increase correspondingly below it. But, as the oxygen of water is plus expansive in the degree it is more dense than the hydrogen of water, its uncombined expansive limit is as much above that of free hydrogen as the latter's condensive limit is below that of free oxygen.

As each species of elements exists in every stratum, but in a different stage of *maturity* in each, it is readily seen that they reach the limit of perceptible heat and light, thence pass into a latent state on the atmospheric plane, in the order of their greater density or passivity on the nuclear plane. In virtue of their successive maturement within the atmosphere of our stratification, they are adapted to enter a higher in this order; their outbirth from its nuclear department, the super-base of ours, being a repetition of the outbirth of their whilom nuclear counterparts from our aqueo-earthly stratum.

This over-lapping of their various stages of maturement within the nuclear and atmospheric departments of successive stratifications or wheels of gravity is *per se* the inseparable continuity of life on the elemental plane; the ascent of the super-mediate grade of germs as the bases of more mature elements being continuously correlated with the descent of the sub-mediate grade as the super-bases of less mature elements.

The wherefore that empyreal substance is adapted to ascend continuously into more and more spacial or higher strata in its organic capacity is in virtue of its homogeneous clasticity and the absolute invariability of its equal motive force under every possible condition. Planets and their atmospheric stratifications decrease in horizontal velocity in the ratio their substance is comminuted by increase in space. This is the exact ratio of increase in the centrifugal tendency or axial velocity of the spherular nuclei involved; the reverse being true in the ratio of decrease in space.

CHAPTER VIII

1. THE great desideratum with regard to the *vital principle* manifest as the motive force of substance in form is not its presence or its efficiency, both of which are self-evident and unquestioned, but its *identification*. Even were there ample proof that it is the intrinsic elasticity of essential substance, this is met by equal proof, that, without the *conditions* by which it becomes motive force, *it is simply "dead matter."* And, were there an equal amount of proof that the condensation of equal quantities within plus and minus areas of space *conditions its movement in counter-directions*, the question of its identity is still undecided. But the vital fact that substance, space, and time, as force, form, and motion, are inseparably one, is universally demonstrated. If substance in form is one with its spacial and timal conditions, or rather *is per se* its own self-conditioned completeness as a whole, there can be no heresy in the question, What is this WHOLENESS of presence, of power, and of design?

It matters not that one mind conceives it to be that within which all things have their being, — Infinite Space; while to another it is the source of Endless Life, — Eternal Motion; and to another the Self-Existent Architect and Aggregate of all things, — Essential Sub-

stance. It is alike *each and all, EVER and FOR EVER*. The perception of this unity of life is the ground of our assumption that the nuclear and atmospheric stratifications, with their inter-strata, that make up our planet-sphere, are developed from the same general plan as the inter-strata or internal organs that make up the animal organisms indigenous to the earth's surface stratum. This includes the perception that the *substance* of its future surface forms is now in being, archetypally existent, like that of the earth's atmosphere, which reveals its real existence by becoming the super-bases of its successively developed surface forms. We can conceive of our planet-sphere in the present as a floating body, whose channel of circulation is bounded by those within which the planet-spheres Mars and Venus float; thence can conceive that its substance once existed in a state analogous to that of the inner ring of Saturn. By idealizing it as a like ring above the sun's superficies, we can conceive of its disruption in consequence of its intense associative velocity; thence of its decrease in the direction of its orbital advance, its length, in the ratio of its increased projection into the solar atmosphere consequent upon the sun's increase in axial velocity. This perception includes the perception that the orbito-axial rotations of the substance of our sphere are inherited from its counter-parent suns in the sense that their counter-tending rays, that combine as its constituent elements, respectively *inherit their orbito-axial rotations*.

It is the decrease in orbital, and increase in axial velocity, in the ratio of their increase in distance from the nucleus of their maternal or proximate sphere, that our sphere's parental suns transmit to these rays.

Owing to their lesser distance, the orbital force of the maternal sun's rays predominate to such a degree, that the nucleus of each new intersphere in its incipiency must needs rotate westward. The subsequent gradual decrease in this vertical movement of its central substance westward, thence of its reversion and increase in velocity eastward, is in virtue of and proportional to a gradual decrease in the disparity in its distance from the maternal and paternal suns, in consequence of the gradual outgrowth of the entirety of nature into higher altitudes from the focus of infinite gravity. As increase in axial velocity or centrifugal pressure is in the ratio of increase in quantity within a given area of space, the substance of the nucleus and atmosphere of our sphere in its incipiency was correspondingly nearer a medium degree of density, like that of cometary bodies.

If atomically illuminable, like cometary bodies, its spherular nuclei must have rotated with the degrees of velocity requisite to project liquid and solid particles, such as are adapted to refract and reflect light.

This mechanical necessity is the ground of our assumption that the heat and light of each planet-sphere, which are *per se* the friction and glintings of their spherular nuclei during their orbito-axial rotations, counterpoised by those of the spherular nuclei of the sun's direct rays, is proportional to the axial velocity of its nucleus and its atmospheric strata, because this is what *determines* the orbito-axial velocity of their centrifugal and centripetal essences, and the distance or altitude at which their counter-elasticities become reversed, which results in their diametric opposition or combination as a series of super-basic encystments whose transparency is proportional to this axial velocity

2. In order to obtain a conception of its functions as an individuality through what is revealed in the functions of its interforms, we must study in detail the effects produced upon the solar sphere by the sphere to whose gravital force it is constitutently subjective.

The bases of its constituent elements were priorly radiated from the nucleus of its ensphering sphere, which, in becoming nucleated as our sun, became associatively revolvent under the converging or condensive pressure of continuously succeeding rays. These, in becoming reflected divergently from its surface, became combined with their converging successors as the nuclear and atmospheric elements of the solar sphere. These continuous rays necessarily increased in *ingressing* quantities in the ratio the new solar sphere increased in spaciality by repeating and re-repeating its own forms of force within itself; the growth of its interspheres being *its* growth. Each primary member in the family of planet-spheres, with its pabula of inter-circulating fluids, represents a specific stratification of solar gravity, hence became incipient when and where the substance of the solar atmosphere attained its elastic limits; its centrifugal rays in combination with the ingressing *extra-solar* rays becoming introverted as its ingrowth.

These counter-tending elements, in turn, became associatively revolvent, first as the nucleus, thence as the atmospheric strata, of each successive stratification; the motive tendencies inherent in the rays of each later being plus complex in virtue of being moulded *in transitu* through every prior stratification of the *intra* and *extra* solar spheres. As is readily perceived, the growth of its planet-spheres within their respective channels of circulation is the growth of our solar sphere; its growth,

and that of its associate solar spheres, being the growth of the *extra-solar* sphere. But it involves successive planes of murement. Each less mature sphere, being constituted of the fruital germs and motive forces of its predecessors on the consecutively more outer and more mature planes, is correspondingly complexed as regards the *directions* of its motive forces. Again: each sphere has its successive stratial planes of maturity, typal, if not actual; each intermediate stratum or stratification being a compound of the plus maturity of all above its spherical altitude, and of the plus complexity of all below it, actual and typal.

Hence the substance of our planet-sphere inherits maternally and paternally, not only the counter-forces necessary to its return in mediate directions to corresponding depths and heights within the spaciality of both spheres *seriatim*, but also inherits all the motive powers by means of which its substance became fruital to the paternal, thence to the maternal sun, thence nutrient to its own inter-strata as one of the latter's primary planet-spheres. In virtue of this, all these motive tendencies are inherent in the substance of its past, present, and, to us, future inter-repeated forms. Hence we must take into account, not only the motive tendencies of the constituent germs of its present surface forms inherited from its own sub-strata and super-strata, to whose interforms they are proximately fruital, but also those inherited from the stratifications of solar and *extra-solar* gravity above and below its present surface stratification.

3. In our search for the more remote origin of the structural proclivities of the forms now existent between its solid nucleus and its gaseous atmosphere, upon

whose counter-tending essences they subsist, we claim that the homologies and analogies in nature—nature's self-testimony—are the inevitable result of the inter-repetition of every preceding or more external form of force *seriatim* as *seriatim* more interior forms of force or fulcral tendencies, which is *per se* the simultaneous repetition *seriatim* of like increasingly complex forms as successive or later and later surface strata in accordance with their increasing spaciality. As these inner and outer repetitions are of necessity correlated formatively and forcitively, they are truthful exponents of the spacial and timal modifications or qualities of the substance involved.

Hence, by truthful deductions from what they reveal, we can obtain knowledge "transcending experiment," and, aside from absolute values, can obtain knowledge of the *absolute qualities* of Essential Substance, and of Space and Time, its conditions. The known fact that the planet-spheres are repetitions of the solar sphere within itself, the incipency and increase in substance of each more inner being causative to the elevation and increase in the substance of each more outer in the ratio of increase in space from the centre of a sphere in correlative periods of time, is *self-evident as a mechanical necessity*. The times of the revolution of the primary planets are proportional to their mean distances from the sun, because their individual momentum—their quantity multiplied into their individual orbito-axial velocities as interspheres at their respective altitudes within the solar sphere—is the correlative of the solar sphere's orbito-axial momentum at its altitude within the sphere of gravity, to which its gravity is constitutionally subjective. In virtue of this law of dynamic

equilibrium, the times of the axial revolution of the earth-sphere at the moon's altitude is the correlative of the time involved in the axial revolution of the solar sphere at the earth's altitude.

As the time of one revolution of the moon's nodes westward on the ecliptic to the point where they sustain such relations to the sun's nodes that the same eclipses will be repeated *seriatim* is about eighteen years, we assume that it is proportional to the time of one revolution of the earth's equinoxes westward on the ecliptic to the points where the line intersecting them will sustain the same relation to the fixed stars as at the beginning of the cycle. From the fact that our sun is always in the perihelion focus of the earth's orbit as also in that of all its primaries, we infer from analogy that the solar system's sun is always in the perihelion focus of its orbit, thence infer that the shortest distance between this sun and that around which it, in its spherical capacity as the sum of its inter-solar systems, revolves, is the line of the solar system's apsides. Hence we assume that the *form* of the orbits of all the planets, primary and secondary, is modified by this line of culminate attraction. As the ecliptic is the plane of the earth's orbit extended indefinitely starward, it is the measure of the earth-sphere's axial revolution at the moon's altitude, and also of the solar sphere's axial revolution at the earth's altitude. The 25,868 years involved in the latter are not only proportional to the eighteen years involved in the former, but they are proportional to the time of the revolution of the solar system's proximate ensphering sphere at its altitude therein. Although, as estimated, the solar system revolves around its sun in eighteen million years, during which

it ascends from its perihelion to its aphelion, thence descends to the former, yet as regards the revolution of the earth's equinoxes, the line of its apsides is comparatively static; that is, it apparently makes one revolution eastward, like the fixed stars, during one revolution of the solar stratification to which the earth-sphere is indigenous. As it has been calculated from reliable data that the westward revolution of the earth's equinoxes has been more rapid for several thousand years than in a more distant past, and that their motion will be correspondingly lessened in a distant future, in like manner as the earth moves through the perihelion hemisphere of its orbit more rapidly than through the aphelion hemisphere, we assume that the solar system is moving through the perihelion hemisphere of its orbit. And as the angle of divergence between the solstitial colure and the line of the earth's apsides, assumed to be that of the solar system at the earth's altitude therein, is now about ten degrees, we assume that it is about seven hundred and twenty years since they coincided, and that the earth is so far removed from the midwinter point of an apsidial year, or from the midnight point of a solar system's day. Hence we assume, that, when the plane of its apsides coincides with its equinoctial colure, the earth-sphere will be at the vernal point of a new apsidial year, or the dawn of a solar day at its inter-solar altitude. If, as assumed, the revolution of the apsides of an ensphered sphere is the axial revolution of the ensphering sphere at the former's altitude, then the orbital revolution of the former at its altitude within the latter is proportional to the altitude at which it would make but one orbital revolution during the revolution of its apsides.

For example: our moon, at the distance of 240,000 miles, makes $12\frac{5}{12}$ lunations, or revolutions, around the earth while the earth is making one revolution around the sun. 1 is to $12\frac{5}{12}$ what 240,000 miles is to the distance of the earth's atmospheric superficies from its centre. This gives about 2,980,000 miles as the radius of the earth-sphere: hence the 25,868 orbital revolutions of the earth-sphere around its maternal sun during one revolution of its equinoxes are proportional to the time of one revolution of the entire solar sphere around its maternal sun paternal to the earth-sphere, estimated at eighteen million axial revolutions of the earth-sphere, or orbital revolutions of the earth. As one axial revolution of the entire solar sphere, *its* apsidial year, is one axial revolution of its maternal sphere at its altitude therein, the direction of the line of its apsides is approximately calculable. The perception that the circles of the perpendicular rays of these plus and minus distant suns are respectively the earth-sphere's equators of *extra* and *intra* solar magnetism relatively plus and minus statie, includes the perception that the earth-sphere is their common offspring on an intermediate plane of maturity, and that the more acute rays of the more distant or paternal sun converge below, as well as diverge above, those of the less distant or maternal sun in the sense that all converging or male essences become reflected from the common centre as female essences. Being the common offspring of their predecessors, the modes of moving by the nuclei of the earth's equatorial rays, which are daily projected across the planes of the equatorial rays of the earlier and later parent suns, are intermediate. Our only key to the comparative reflex momenta of these counter-parent rays is the supposi-

tion that their quantities and densities are proportional to the quantities and densities of these suns, the ratio of which is the disparity in time between their revolution within the earth-sphere.

4. As the earth's entire atmosphere of *intra*-solar rays makes 25,868 revolutions, while the *extra*-solar rays within the stratification of the inner sun's atmosphere, to which the earth-sphere is indigenous, makes one, the greater complexity or more numerous motive tendencies inherent in the nuclei of the less distant sun's rays equals the greater static permeability of those of the more distant sun's rays. Although their minuteity of coalition is a degree of density or inter-penetrability utterly beyond human conception, since they neither obstruct nor are obstructed by the densest solids known, yet the nuclei of these latter rays are the fulera upon and against which the nuclei of the former rays act and re-act in passing through their atmospheres.

5. By thus idealizing the centrifugation and centripetation of these counter-parent rays, we perceive that the circulation of the earth-sphere and its commensal spheres within the solar organism—during which they assimilate from higher and lower altitudes, and lower and higher latitudes, their needed supply of counter-condensed essences, by means of whose counter-elastencies the process is continued—is prototypal of the inbirth and circulation of nutrient fluids within our organisms from opposing directions as opposing curvential systems.

The apparent movement of the perihelion and aphelion points of the earth's orbit westward, like that of the fixed stars, is the actual revolution of its stratification eastward 50" annually, the equatorial and polar

rays of which are concentrated upon its surface as its equator and poles of *extra-solar* magnetism.

As the solstitial points where the *extra-solar* sun's perpendicular rays are reversed from their highest latitudes are as counterpoints of alternately plus and minus resistance within the earth's polar hemispheres comparatively static, as are their opposite points of equilibrium on the equinoctial, their location on the earth's surface, and also like points of impingement by like rays of the *intra-solar* sun, may be calculated by noting the stars that culminate the moment the latter sun crosses the equinoctial. This, because the points of impingement by the rays projected from the poles of the former sun's circle of perpendicular rays are recognized as the earth's northern and southern magnetic poles. These points, against which like polar rays of our sun are pitted, are as static as the ice that renders them unapproachable. The solstitial, equinoctial, and polar rays of our sun are motorially mediate between those of the *extra-solar* sun projected upon, and those reflected from, corresponding points on the earth's surface: hence the daily and annual oscillations of the plane of the earth's equator across the planes of its equators of *intra* and *extra* solar magnetism — its *intra* and *extra* solar orbits — are intertypal of like oscillations by our sun during its individual axial and orbital revolutions.

As the earth revolves on its axis, the sunward hemisphere of its atmosphere is oblated, and the opposite hemisphere is correspondingly prolated, in accordance with the form of solar gravity, whose equal bilateral pressure counterparts the equal pressure of the sun's direct and reflex rays. While the oblated hemisphere is exhaling its own condensing essences, and inhaling

the expanding essences of lower solar strata, the prolated hemisphere is exhaling its expanding essences, and inhaling the condensing essences of higher solar strata.

As each meridian of its atmosphere passes down toward the focus of solar gravity, not only is its atmosphere as a wholeness oblated in the direction of the sun, and prolated in an opposite direction, in accordance with its position between the centre and circumference of solar gravity and the centre and circumference of the sphere of gravity to which solar gravity is constitutively subjective,—which position determines the ellipticity of its orbit and the direction of its apsides,—but the opposite meridian hemispheres of its every atmospheric spherule are correspondingly modified by the radial force of solar and terrestrial gravity in accordance with their relative positions between these spherical foes.

6. Not only is the earth-sphere's respiratory process repeated by its every spherule, and by every form they constitute, with a frequency proportional to its quantity modified by its freedom to move, but the modes of moving by each complex form are determined by the peculiar arrangement of its elemental spherules, which, in turn, is determined by the tendencies which they inherit from their respective parental conditions, past and prior-past *ad infinitum*; complexity in movement, or ability to move in numerous directions, being the elastic tendency of the substance of *inner and sub-inner organs*, and the consequent attractions toward, and repellences from, these *inner and sub-inner centres of gravity*. The earth-sphere's respiratory locomotion is the result of the unequal pressure of the solar atmosphere upon its atmosphere.

The maxima of plus and minus pressure by the for-

mer upon the latter is on the line of the earth-sphere's atmospheric equators; while the latter's maximum of resistance is on its nuclear equator.

In consequence of this unequal pressure, the latter's centre of gravity moves around from side to side of its line of direct advance as truly as does the centre of gravity in a quadruped during its locomotion; the cause of which latter is the unequal pressure of the *earth's atmosphere* upon its *atmosphere*, and the disparity in direction between the downward force of its atmospheric equators upon its spinal axis and the upward or resistant force of the latter.

To comprehend the super-basic forces involved in the orbito-axial locomotion of the earth-sphere,—which, we assume, are repeated as fulera in its every interform, in accordance with the maturity of its species,—we must take into account the fact, that although the central axis of the earth's equator of *intra-solar* magnetism, the plane of our sun's apparent path through the heavens, is to the earth's inhabitants the sun's central axis, yet the foci of its perpendicular and oblique solstitial rays, which converge within the earth's polar hemispheres, are bilateral to its own centre of gravity, hence move around alternately above and below it during each of its three hundred and sixty-five and one-fourth axial rotations and its one orbital revolution; the latter being one additional axial rotation, during which the daily solar counter-tending waves of low and high water culminate as one annual counter-tending tidal wave. In like manner, although the central axis of the earth's equator of *extra-solar* magnetism, the centre of the solar system's path around its sun, is to the earth that sun's central axis, yet the foci of its perpendicular and ob-

lique solstitial rays concentrated within the earth are bilateral to its centre of gravity: consequently these foci move around alternately above and below the plane of the earth's axis, and bilateral to the plane of its equator, during its 25,868 revolutions around the *intra-solar sun*, which culminate as one revolution of the solar system at the earth's altitude therefrom. This is one *extra-solar* counter-tending water-wave. During this period, the lowest latitudes at which the sun's light and dark rays are alternately wanting describe the polar circles twenty-three degrees and a half below the astronomic poles, their highest points of contact with the earth's surface. And, during the same period, the highest latitudes of contact between the sun's perpendicular rays and the earth's surface describe the tropics, twenty-three degrees and a half bilateral to its astronomic equator.

The spiral reversions by these perpendicular *extra-solar* rays from their highest latitudes are definite fulcral points within the earth's atmosphere, just as like reversions by their polar rays are definite fulcral points on its surface. As the fulcral rays within the earth's sunward or negative hemisphere are plus condensed in the degree those within its anti-sunward or positive hemisphere—positive in the sense that they are *de facto* the later direct rays of the paternal sun descending coincidently with the maternal sun's reflex rays—are minus condensed, they substitute each other's spacial conditions during equal periods of time; that is, as regards light and darkness, and heat and cold.

7. When we reflect that the propulsion of the earth-sphere around the maternal sun, the source whence it receives its basic nutriment or centrifugal force, is *de*

facto its propulsion around the paternal sun, whence its super-basic nutriment, or centripetal rays, were radiated prior to their condensation within the solar sphere,—the resistent elasticity of which counter-tending rays when combined within it, being equal to the persistent elasticity of those combined above and below its peripheral limits,—we are prepared to find these counter-parent suns repeated and re-repeated as the consecutively more complex nuclei of the consecutively more complex systems of circulation in its successive interforms. It is only in accepting them as intertypes of these orbs, that we can understand the functions of these counter-foreitive nuclei. For example, the centrifugal force of the spleen and liver is within the alimentary system; that of the renal glands, within the lymphatic system; that of the pulmonary organs, within the sanguiferous system; and that of the cephalic ganglia, within the range of special sense. The outgrowth of each form of force consists solely *in the repetition, seriatim, of every provisional form of force within itself as ingrowth*; each culminate form being the *sum* of its interforms. This law of growth outreaches and inreaches from intermediary in every department of nature, physical and metaphysical; each artistic creation being simply the symbolic outgrowth of its intertype within the mind, the subjective universe of its artificer. The reflex force of these internal nuclei are pitted against that of the external appendages of the organism; their combined force, which is alternately reflex and direct, being pitted against a co-equivalent of atmospheric pressure, whose force is, in turn, alternately direct and reflex, co-acting with the former in rhythmie equations of time.

Not only are the earth-sphere's paternal and maternal

suns repeated in the alimentary systems of its most complex interforms as the spleen and liver respectively, but the functions of its own nucleus and those of the lunar sphere are repeated in those of the bowels and pancreas respectively, all of which, as we purpose to show, are re-repeated as centres of force in the lymphatic, the sanguiferous, and the cephalic systems.

In like manner as the functions of the spleen and liver are bi-polar or bilateral to the functional range of the alimentary canal in its most complex organisms, so the polar rays of the earth's counter-parent suns are especially condensed on its surface bilateral to its astronomic equator as magnetic poles; while those at the solstitial points of reversion are proportionally less condensed at corresponding points from the periphery of its atmosphere to its nuclear surface, in being transmitted through, and reflected from, the super-base of each intermediate stratification.

The line intersecting the poles of the circle described by the *inner* sun's perpendicular rays is the line of *intra-solar* annual ebb-tides within the earth-sphere; while that intersecting the poles of the circle described by its most oblique inter-tropic rays is the line of its *intra-solar* flood-tides.

Like lines intersecting the poles of like circles described by the paternal sun's rays outline the ranges of its *extra-solar* ebb-tides and flood-tides that move castward over the plane of its magnetic equator during an equinoctial year. These tides alternately destroy the fixed forms of life indigenous to its aqueous and aerial strata. While one pole of its equator of plus-static or negative *extra-solar* magnetism is located about 70° north latitude, and 95° west longitude from Greenwich,

its counterpart being at an antipodal point in the southern hemisphere, the poles of a counterpart equator of positive magnetism are on opposite meridians at the higher apsis of the polar ellipses, where the direct and reflex rays of its paternal sun are alternately wanting. As these rays were, as now, projected from corresponding points on the proportionally larger paternal sun, the ellipses described by the poles of its hemispheres of direct and reflex rays, and by their points of reversion from their highest latitudes on the earth's surface during one revolution of its equinoxes, *include* the polar and tropic ellipses described annually by the poles and equators of the maternal sun's hemispheres of direct and reflex rays; that is, the polar circles and tropics described by the former are nearer the earth's poles and equator than those described by the latter. A perception of the mechanical powers involved is the ground of our assumption that the antipodal superpressures causative to the plus and minus velocity of our planet-sphere during its revolution through the perihelion and aphelion hemispheres of its orbit are procreated by like alternations of plus and minus antipodal pressures upon the solar sphere during its orbital revolution, by the atmospheric rays of its consecutively more embracing parent spheres; the frequency of which alternations necessarily lessen in the ratio the substance of their atmospheres lessen in weight from diffusion, which is in the ratio of increase in space from the centre of a sphere, or from the focus of infinite gravity. Thence we assume, on the same principles, that the alternations of plus and minus pressure by the earth's atmosphere upon the atmospheres of its consecutively more interior stratifications, or worlds

of stratal interforms, consequent upon its axial rotations,—which are inter-repetitions of the sun's axial rotations,—outwardly repeated as the earth's annual revolutions, increase in frequency in the ratio its weight increases by the coalition of its substance toward the earth's surface, which is inversely as the square of distance therefrom. As these alternations of general counter-pressure by the earth's atmosphere, including every other local variation, were impressed upon its successive surface forms, their variations in structure and function reveal the earth-sphere's progress in development as their culmination.

The fact that the acme of atmospheric force, direct and reflex, is concentrated upon the earth's surface at its counterpart magnetic poles, and the correlative fact that their advance is equal and opposite to that of the recession of its apsides, license the assumption that the re-active force of the earth-sphere at these counterpoints counterpoises the force of like rays reflected from corresponding counterpoints on its paternal sun. This, in turn, licenses the assumption that the actions and re-actions between like rays from the maternal sun, concentrating at like counterpoints on the earth's surface, are in dynamic equilibrium or unison with the actions and re-actions of the former, in the matter of forcing the earth-sphere onward by diagonal strides across the planes of its *intra* and *extra* solar orbits, just as the locomotion of animals is in virtue of like reversions of like bilateral forces. The fact that the rainy seasons of low latitudes, and the overflow of the Nile and other inter-tropic rivers, occur during the passage of the sun through the perihelion hemisphere of the earth's orbit, is ample proof that there is an increase of pressure

upon, and condensation of, the earth's atmospheric elements as it descends toward the focus of solar gravity. The humid and aerial principles were recognized by the ancient Egyptians as the female and male generative powers of nature.

Isis and her brother-husband Osiris were twain-in-one in the sense that Isis was the sun within the earth's lower or female orbital hemispheres. Osiris, being the sun during its passage through the aphelion hemisphere, thence became lost or buried within the earth,—beneath the Nile, after the autumnal equinox. When the Nile began to overflow, just before the winter solstice, the moaning waters out-rushing in virtue of the air—the fertile breath of Osiris condensed within them—were said to be the tears shed by Isis at the loss of Osiris. These maternal tears guaranteed the sure return of the paternal principle, which was actualized by the meeting of Isis with Osiris at the vernal equinox. But the more outer male principle was continuously supplied by the thunderbolts of Jupiter,—a more distant and more ancient sun, sent down to earth through the agency of meteoric water through all these seasons of overflow and rain. The Cybelene and other mysteries—all of which refer to astronomic and cosmographic changes—evidently symbolize the perception by ancient sages that the earth-sphere is gestated by and between the sun of the solar sphere and that of a more embracing sphere, whose functions are relatively female and male, although *one and the same atmospherically regarded*. The discovery of ancient Egyptian zodiacs, on which the leading equinoctial point is in Leo, is conclusive proof that their construction dates back not far from ten thousand years, and that their

constructors understood the revolution of the earth's equinoxes and the comparative staticity of the solar system's apsides. The increasing pressure upon the solar sphere during its semi-revolution from its aphelion to its perihelion, or from its highest to its lowest altitudes, within *its* proximate or maternal sphere, and the decreasing pressure upon it from its perihelion to its aphelion, and also the alternations of pressure occasioned by the diurnal and annual revolutions, were of necessity impressed upon its constituent spheres. This super-pressure is the persistent power that moves its interspheres,—its internal machinery, in virtue of their synchronous re-actions; each expressing its maxima of resistance at the points of maxima pressure, and its minima of resistance at the points of minima pressure, and with corresponding counter-actions at all intermediate points.

8. In virtue of this co-equal atmospheric pressure from above and from below, and bilateral to the earth which culminate at these especial points, its centre of gravity is moved forward in its orbit by the continuous revolution of its opposing solstitial points of reversion, and the poles of its atmospheric or dynamic equators around its axis of rotation. Not more really does a quadruped walk the earth by forcing the anterior half of its longitudinal axis forward, and to the left of its centre of gravity, and the posterior half forward to the right of it while its right fore-foot is rising, and the left hind-foot is lowering, thence by forcing the anterior half of the spine forward to the right of the centre of gravity, and the posterior half forward to the left of it while the left fore-foot is rising, and the right hind-foot is lowering, thus on in continuous alternation, than did the

earth-sphere at the era of their advent walk its rounds through space by advancing the anterior or eastward half of its longitudinal axis forward to the left of its centre of gravity, and the posterior or westward half forward to the right of its centre of gravity, while its right front atmospheric pole was rising, and the left hind pole lowering, thence reversing the position of the anterior and posterior halves of its longitudinal axis, while the left front pole was rising, and the right hind pole lowering.

To complete the analogy, we must regard the northern and southern hemispheres as its left and right sides, and its anti-sunward and sunward hemispheres as its dorsal and ventral hemispheres. It is readily perceived, that, while its elevated poles are moving directly or coincident with its advance eastward, its lowered poles are moving reversely, just as do the motive forces of the poised limbs of quadrupeds which fulcate or negative the direct movement of their elevated limbs, thereby *push* their bodies forward. In order to understand the homology of structure between the earth-sphere and its most complex interforms, we must, in accordance with the principles of repetition, regard it as a repetition of the solar sphere up to its spherical status.

If it be such, it has three atmospheric stratifications above its nucleus, an inter-repeated sun, each of which has its co-equivalents of nuclear and atmospheric strata. Above and surrounding these, and through which it circulates, as do blood-corpuscles within the sanguiferous system, is their common atmosphere, their common pabula as a whole.

Thence, by regarding the interior fulera provisional to its locomotion as prototypal of those provisional to the

locomotion of quadrupeds, we perceive that the exterior fuleral force involved is the correlative pressure of the sun's perpendicular and oblique inter-tropic rays of plus and minus expansive substance upon its sunward and anti-sunward surface. When combined and deflected by equatorial repulsion as permanent bilateral counter-currents, these rays are prototypal of the spinal nerves of motion and sense in quadrupeds, by whose direct and reflex actions upon those twisted around the bones of their limbs, they move from place to place. If, as assumed, the three hundred and sixty-five and a fourth rollings over of its nucleus culminate as one rolling over of its entire superficies, the relative position of the earth-sphere's anterior and posterior extremities, and its dorsal and ventral hemispheres, are unchanged as regards the sun. The earth's raised poles, like the raised feet of animals, are receiving positive or plus mobile magnetism from higher solar strata, while its lowered poles, like the poised feet of animals, are receiving the comparatively negative or minus mobile magnetism of lower solar strata. These counter-condensed strata fulerate their movements. Its axial revolutions effect the same exchanges between its opposing subdivision as do the eirculating fluids in animals. Positive and negative, boreal and austral magnetism, and like electric qualities, are simply the various spacial modifications of its empyreal substance, which determine the direction of its elastic tendencies, all of which inhere in and are expressed by the forms it becomes.

The reversions of the opposing rays of force upon the sunward and anti-sunward hemispheres of the earth from its highest latitude south to its highest latitude north of the equator of its sphere of subsistence, and

vice versa in continuous alternation, not only force it to move through one-half of its orbit north, and through the other half south of it, but, the impress being organic or functional, it is repeated by its every self-moving surface form; the longitudinal axis of each being forced from side to side of, and above and below, its line of direct advance in continuous alternation.

This is effected by corresponding contractions and relaxations, or condensations and expansions, of its own atmosphere superinduced by like counter-functions inherent in every element of the earth's atmosphere, which, in becoming its breath of life, is *per se* its will-power, doing ever that which it needs to have done. Not only are the orbits of all the planets known to be elliptical, egg-shaped, with the smaller or oblated end always turned toward the focus of its ensphering sphere, but the fact that our highest tides occur during day at new moon, when the earth is at its aphelion, and during night at full moon, when the earth is at its perihelion, proves conclusively that the lines of the moon's and earth's apsides are subject to the counter-attractions of an elliptical form of gravital force, and that all the inter-solar spheres are in static and dynamic equilibrium between equal persistent and resistant forces from opposing directions. If so, all are ascending to consecutively higher altitudes of the paternal sphere by the comminution of their substance in the ratio they are freed from associative rotation with the nucleus of the maternal sphere, which comminution is in consequence of its prior coalition during its centripetation. Not only does the earth-sphere cross and recross the equator of the solar sphere in its annual progress, but its own equator crosses and recrosses the plane of its orbit

in its daily strides. The *form* of the oscillations from side to side of the former is *serpentine*, as are the daily oscillations; while its annual and diurnal oscillations above and below the centres of solar and terrestrial gravity are *vermicular*.

These two *modes* of locomotion are the bases of all other modes.

The possibility of locomotion, and of every other motion by animal forms, is due to the correlative tendencies between the essential substance fruital to the outer sphere, or outer form, which become nucleated as its interspheres or interforms, and like fruital substance, which, in virtue of being transmitted through the same outer sphere, or outer form, and moulded into the same organic tendencies, is adapted thereto, and is continuously becoming nucleated as the interforms or *growth* of those priorly nucleated.

If the earth-sphere is moulded into the same organic tendencies as the solar sphere up to its spherical status, as it must of necessity be, because gestated therein, by a co-equal necessity, every nuclear organism within it must have its points of maxima and minima persistence and resistance, and its lines of mediate force counter-parted by like points and lines within its atmosphere, all of which continuously move in the direction the needs of its interforms indicate. To ignore the growth of, or the need of, sustenance by the earth-sphere, within which, and upon whose essences, we subsist, is to ignore every law of our being. The demands of the tiniest taper for an exact equivalent of basic and super-basic substance to substitute that which it radiates as heat and light, answers every query as to whether or not the sun can continuously radiate the heat and light

necessary to warm and illumine the entire solar system, without an equivalent of like substance provisional thereto.

That every organism is made up of organized germs of form, and is continuously sustained as such by the assimilation of substance inheriting motive tendencies consonant with those expressed in its motivities, we recognize as a clearly demonstrable truth, which utterly precludes the possibility of *inorganic motion*,—*a self-evident impossibility*. We therefore accept as an indispensable *precedence*, that the earth's ability to nucleate the essences fruital to the elements of its priorly developed nuclear and atmospheric interforms, and its present atmosphered surface forms, is consequent upon being nourished itself by essences fruital to like elements forced within its gravital limits, and into coherent opposition as form *from the solar sphere*, which, in turn, is nourished by like essences fruital to the elements of the sphere to which it is constituent; so on back, *ad infinitum*, the nourishing of each being the nourishing of its interforms and sub-interforms *ad infinitum*. The counter-tendencies of the essences assimilated by the earth-sphere from higher and lower strata of the solar sphere become the counter-functional tendencies of corresponding strata within it, whose fruitage, in turn, becomes basic to strata of corresponding functional tendencies within its interforms and their interforms, on and on. Being, as a whole, a nucleated cell, the earth-sphere's respiratory process, like that of its locomotion, is prototypal of that of the cells of its interforms, each of which breathes its breath of life of and for itself as truly as does the organism within which it subsists. The nutrient essences that become its ultimate spherules

in ovo do the same ever and for ever. If this be true, then the waves of forcee within our strata of different compounds are introversions of like waves within like strata of the sun's photosphere; the times of the reflection of each from the earth being proportional to the mobility of the substance involved. That is, the forcee of the sun's direct and reflex empyreal rays upon the earth so counterpoise its eentrifugal forcee, that there are ebb-tides within its entire illuminable stratification on the mid-day and midnight meridians, their obliquity at intermediate meridians permitting flood-tides from a corresponding excess of eentrifugal forcee. These dual waves of light and darkness occur once in twenty-four hours. Its aqueous waves, introversions of those within the stratum of invisible aqueous vapors, or stratum of clouds, occur once in twenty-five hours.

The earth's aerial and super-aerial tides, and those within their atmospheres, are respectively less and less frequent; thus on through each higher stratification to the periphery of its atmosphere, the annual revolution of which is the annual revolution of the earth-sphere's outermost counter-tides. Being a repetition of the solar sphere within itself, the earth-sphere's tides are of necessity the spacial and timal correlatives of the solar tides by which they are superinduced; thus on and on through every more embracing sphere. This law of repetition is our license for assuming that the development of a chick between the yolk and white or nucleus and atmosphere of its ovum of evolution — its maternal sphere on the embryonic plane — is a repetition of the development of the earth-sphere between the nucleus and atmosphere of its maternal sphere. The wherefore that this simple process of growth is not readily per-

ceived is not alone because the atmospheres of nature's forms are non-objective, but because the *moulding* of the nuclear and atmospheric or female and male germs that become its ovum of evolution within the organism of its maternal parent, as the representatives of those of the solar and earth spheres *in embryo*, is not perceived. But, *when perceived*, it is a blow to the principle of evolution, and reveals the fact that the "germinal spot" is a miniature repetition of the ovum of evolution, which is a miniature repetition of the earth-sphere and solar sphere, and of every other more embracing sphere. This perception leads to the perception that the male and female germs moulded within the organism of the male parent are the representatives of those of the solar sphere, not only up to the advent of their specific structure as a new form of force within the earth-sphere, but up to the later advent of the individuated organism of its male sex.

This latter perception not only reveals the greater maturity of the earth-sphere at the advent of distinct male forms in its successive species of increasing complexity in modes of moving, but it also reveals the wherfore that the maturation of male forms up to puberty requires a greater extension of time than that of female forms.

The lesser disparity in density between the nuclear and atmospheric substance of the earth-sphere at the era its species became incipient is evidently repeated in the slight disparity in density between the yolk and white of the chick's ovum of evolution. In virtue of this more equal density, the counter-sexual germs fruitful to the elements of its parent forms when combined as the cell-nuclei of its "germinal membrane"—its uni-

verse of elemental spherules *in embryo*—are *visible*; whereas the prime aggregation of like substance as the germinal membrane of a new planet above the surface of the sun or earth would of neeessity be *invisible*. Hence, in assuming that the changes which oecur in the formation and transformation of the germinal membrane of the chick are .intertypal of those which occurred in that of the earth-sphere at a corresponding stage in its development, we infer that the substance of its middle layer or aerial stratum—the prototype of the middle layer or sanguiferous system of the chick's germinal membrane—was, as now, *invisible*.

In the case of the chick, the “area of germination” is first rounded in form, then oval, then pear-shaped, and then guitar-shaped. Prior to the last of these changes, all of which have their prototypes in the earth's earlier crustacea, the infoldings of the serous and mueous layers indicate its greater typal complexity. The sprouting of the allantoin proves it to be an embryo air-breather. Now, taking it as granted that the internal organs of higher animals represent the funtions of the earth's parental orbs in the order of the earlier efficieney of their rays, we recognize the *needed* efficiency of an organ purely centrifugal.

9. As the spleen and liver are situated on the left and right of the stomach when developed,—the single funtion of the former being the propulsion of its fluids to the liver; while the funtions of the latter eonsist in forcing its fluids in two prime directions, above and below the stomach, and indirectly to it,—we assume the presencee and efficieney of the fluids that are to become the forms and functions of these organs *prior to their visibility*; and assume, that, as such proereating fluids,

they represent the tendencies of such rays from the earth's paternal and maternal suns as were and now are efficient in building up *its* corresponding centres of centrifugal force.

Not only so, but as the earth's prime animals were in form simple stomachs, which, in becoming the prime system of circulation, culminated as anastomosing alimentary canals, thence as anastomosing chylaqueous or portal systems, we assume that the development of the latter necessitated the repetition and inter-repetition of these parental nuclei as internal centrifugal organs provisional to corresponding more and more outer centripetal or atmospheric organs.

In recognizing the pancreas and gall-cyst of more complex animals as repetitions of the spleen and liver within their combined functional range, we recognize them as culminations of the diffused salivary and hepatic glands of less complex animals.

This, because we perceive that all glandular formations, like the nuclei of spheres of gravity, are functionally female in the sense that their fluids or rays are purely ex-central, regardless of direction; while male or atmospheric fluids or rays, which are always combinations of the fluids or rays fruital to plus and minus mature glands or spherical nuclei, tend with equal force toward and from their proximate matrice, whose atmosphere, in being their common offspring, *is included in that of the ante-proximate matrice*. The development of the primary planets as the successive representatives of the *extra-solar sun's* centripetal force within the solar atmosphere, necessitated, hence was provisional to, the development of like representatives of its centripetal force within the atmospheres of these primaries in the

order of their successive incipiency ; this, in turn, being provisional to the development of corresponding representatives of centripetal force in the successive systems of circulation in the constituent organic forms of each, in the order of their needed efficiency. Hence in recognizing the spleen and liver as the plus and minus mature matrices of the stomach, the earth-sphere's prime representative in its animal forms, we recognize them as being the ante-proximate and proximate maternal matrices, whose combined centrifugal force, conditions and counterparts the purely centripetal force of the stomach, — their common atmospheric offspring. This is more clearly revealed in their successive representations. The functions of the gall-cyst represent the solar system's centripetal force within the earth-sphere's second representative in its animal forms, the intestines ; while the functions of the pancreas represent the centripetal force of the solar system's proximate ensphering sphere within the earth-sphere, — their common offspring on a higher plane of development. This repetition of their combined centrifugal force in the earth-sphere's constituent forms was of necessity contemporaneous with like repetitions in the solar sphere and in *all its interspheres*. Thence accepting the lacteal system, which culminates in the thoracic duct as the atmosphere of the alimentary system on this higher plane, we perceive the necessary repetition and re-repetition of these parental spherical nuclei as the renal glands and kidneys, — the female department of the lymphatic system, — the representative of the earth-sphere on the aqueous or pre-aerial plane. While the portal system represents the earth's internal reservoirs and rivers to its mountain-tops, the true sanguiferous system including the bronchial, which

is developed between the afferent and efferent lymphatics, represents the earth's aerial stratum between its strata of surface and meteoric water. The venous sinus that surrounds the "vascular (sanguiferous) arca" is the first blood-vessel developed. The capillaries of the anterior and posterior longitudinal veins, whose fluids flow heartward, take their rise in the anterior and posterior portions of this sinus; while those of the bilateral arteries, whose fluids also flow heartward, take their rise in its lateral portions. As this vessel is developed at the horizontal juncture of the serous and mucous layers of the germinal membrane,—assumed to be an intertype of that of the earth-sphere, made up of the counter-tending germs fruital to the rays of its counter-parent suns,—we perceive, that, in like manner as the substance of the anterior and posterior portions of the earth-sphere is minus condensed compared with that of its polar portions, the same must have been true as regards the density inherited by the fluids within the anterior and posterior portions of this sinus compared with those within its lateral or polar portions. Hence the veins are functionally male, and the arteries female, in the sense that the fluids of the former are plus mobile, and those of the latter minus mobile, compared with a medium degree of mobility.

10. Now, it must be borne in mind that the vessels of the venous and arterial systems are as truly individual both as vessels and as systems of circulation, each living and growing for and of itself by exchanging its fruital essences for those of other vessels, thereby repeating its every more outward vessel, *seriatim* as its *seriatim* more interior vessels, as are the organisms of the two sexes of a species.

Like its vegetable prototypes, the venous system has its original rootlets and its terminal branchlets,—the former in the cutaneous air-cells, the latter in the pulmonary air-cells. The rootlets of the arterial system are mouthed in the depressions of the pulmonary membrane between the projections that constitute the venous air-cells, and terminate in the projections of the cutaneous membrane between the depressions in which the rootlets of the venous system are mouthed. “The veins are first developed, first as mere channels between cells apparently homogeneous; and the substance forced in through them nucleates as plus condensed cells, which, by the forcing in of more and more mobile fluids, grow in size, and elongate outwardly as minute arterial capillaries.” When they attain the same altitude, the venous capillaries absorb their fruital essences. This increases their static and dynamic power. Their essences, in turn, being forced into the nascent arterial system, increase its structure and functions correspondingly. Each system grows by exchanging its fruital germs for those needed as nutrient; while at the same time each absorbs equal quantities of external nutrient essences; the same process being repeated by all their inter-repeated vessels. Those outborn from the venous capillaries into the pulmonary air-cells, and inborn within the arterial capillaries, are plus complex in the degree those outborn from the arterial capillaries into the cutaneous air-cells, and inborn within the venous capillaries, are plus mobile or more mature. This, because the elasticity of the atmospheric germs absorbed by the former is centrifugal from plus condensation; whereas the elasticity of those absorbed by the latter is centripetal from minus condensation. The fluids within the

venous system are continuously being brought into nutrient relations with those of their attendant nerves and lymphatics, as well as with their arterial counterparts, at which anastomozing points their counter-tending fluids exchange the essences whose elastic tendencies retard their flow for such as accelerate it. The germs exchanged being, like the parent corpuscles, plus and minus mobile or mature, they are just the nutrient force needed by each germ and each corpuscle in order to aid it in moving in the direction and to the point, where each needs to *move* and to *be per se*, which is just where its structural proclivities are needed by the organism. The greater mobility of the atmospheric germs absorbed from the eutaneous air-cells is revealed in the purple color of venous blood.

The movement of this dark blood toward the centre of the embryo from every direction is ample proof that it is the continuous pressure of the atmosphere, that, in forcing its essential germs into the interspacess between the cells into which the contents of the germ-yolk have become divided, forces them not only *to* and *from* its centre, but it forces them into combination within these cellular germs as their specific fluids and tissues, including the blood and its vessels, in accordance with its archetypal structure,— that of its parent forms on the mature plane.

When the whilom arterial germs — now plus complex from their combination with external germs, as well as with all those internally received as basic nutriment — have become ripened within the venous system, they become outborn therefrom into the pulmonary air-cells of the arterial system, still merely typal.

Having given off their super-aerial germs — predomi-

nantly hydrogen and nitrogen—in exchange for aerial germs—predominantly oxygen and nitrogen—during their transition through the bronchial tubelets, the color of the blood becomes changed to red by increased condensation and oxidation. During its eycle through the central sinus, or incipient hearts, outward to the bilateral portions of the horizontal sinus, all the germs that make up this red blood are brought into nutrient relations with those that make up the fluids of the veins, nerves, lymphatics, and laeteals with whieh the arterial capillaries anastomose. The fluids of the thoraeic duct, assumed to be intertypes of the earth's mountain-waters, flow into the descending vena cava, unanalyzed; the laeteal vessels of the mucous layer and the nerve fibres of the serous layer having been provisional to the development of the venous sinus. It must be borne in mind that each animal *in ovo* is typal-ly the complete structure of its species: hence it is an intertype of the complete structure of the earth-sphere's archetypal status as regards its spherical and stratial positions at the era of its advent as a culminate species. That is, its ventral hemisphere is correlated with the earth's rays, and its dorsal hemisphere with those of the sun, its counter-parent orbs; the earth-sphere as a whole having always sustained the same relations to the rays of its counter-parent orbs, regardless of the transposition of its internal fluids. Hence the mucous layer of the germinal membrane that is first folded in around the embryo, and introverted as ventral organs, is the representative of a like stratum of *intra-solar* compounds introverted within the sunward hemisphere of the earth-sphere as its ventral organs; while that portion which is reflected around it in con-

junction with the serous layer—an inter-repeated stratum of *extra-solar* compounds, thereby forming a double envelop, between which the allantoin membrane develops—represents the earth's anti-sunward hemisphere. As all the earth's free-moving forms, like itself, become such by the introversion of the currental systems of their lower atmospheric or ventral strata (the fulcral points of which become subsequently extroverted as locomotive organs; the anterior becoming more or less prehensile, as in the case of quadruped and biped), we must bear in mind that their higher atmospheric or dorsal strata of currental forces are non-objective from minus condensation, except in the efficiency of their points of super-pressure on the dermal skeleton, which is more especially marked at the points of attachment between the limbs and the neuro-skeleton. When the mucous layer closes in around the nascent embryo, pinching off a part of the food-yolk as the content of the alimentary which these foldings form, the vessels of the middle or sanguiferous layer branch out into what are termed the "vitelline vessels." Now, accepting the "yolk-halones" and the "white or germ yolk" centred within them as intertypes of the earthsphere's sunward, or ventral strata, introverted as the internal strata of the ovum, we perceive, that, in becoming the internal organs or systems of circulation in the animal, their prototypes are necessarily the earthsphere's internal organs.

It is possible to conceive that our planet-sphere once existed as a stratification of germinal elements immediately above the sun's surface, the bases of which were fruitful to like elements constituent to the sun's internal organs. These, in being radiated therefrom, became

atomically atmosphered by like essences radiated from the sun's sun converged from the periphery of the solar atmosphere upon the dorsal hemisphere of this incipient germinal membrane. And it is possible to conceive that the rays of these counter-parent suns became staticised, first as an outer or serous layer, thence as an inner or mucous layer; and that, through their combined agency as counter-matrices, an intermediate layer, inheriting the motive tendencies of both, was subsequently developed from the same sources; the female or centrifugal germs being endosmosed through the ventral or inner layer, and the male or centripetal germs, through the dorsal or outer layer. It is readily perceived, that under the continuous supply of the counter-germs or rays necessary thereto, through the agency of these pre-specific counter-matrices or counter-sexual strata, the elastic force of whose elements is toward each other, the intermediate layer is bi-sexual, and independently generative. Its substance being meditately condensed, compared with that of its counter-matrices,—the denser inner layer and the rarer outer layer,—its elements, compounds, and complex forms, are equally nuclear and atmospheric. This, because their basic essences are fruital to the inner, and their super-basic essences fruital to the outer layer, *combined as the constituent elements of each from their incipiency onward*: hence each form, female and male, is alike adapted to reproduce of itself the pre-specific progenitors of its specific offspring,—female and male protozoa. As a whole, this counter-creative or counter-sexual stratification was adapted to become the prime nucleus and the prime atmosphere of our sphere of subsistence, between which all its complex forms became incipient; its stra-

tial relations remaining unchanged during the subsequent increasing condensation of its inner equivalent with a like increasing rarefaction of its outer equivalent. And when, at the altitudinal limit of its counter-elastic forceitiveness as such, its organic relations ceased, — the nuclear elements of its surface forms as a whole becoming somatically dead because of the ascent of their atmospheric counter-germs as the bases of a stratum of more highly comminuted elements, — its *essential relations* were unchanged.

This separation of the atmospheric organism from the nuclear organism of the earth-sphere's innermost stratification, a periodic necessity, not only adds equal quantities of pre-organized elemental germs to its nucleus and to its atmosphere, but it conditions the incipiency of other intermediate stratifications at specific periods of time. Now, if it be true, that, as a whole, the ventral surface of the earth-sphere is continuously correlated with the direct rays of the sun, as the ventral surface of all its animal forms is correlated with those of the earth, even when erect, all alike passing through the series of changes provisional thereto during their development, while the dorsal surface is correlated with the rays of its paternal sun, then there must have been a central point where these counter-rays became perpendicularly opposed during the development of its germinal stratification. This point was of necessity its centre of gravity, inasmuch as the entire opposing hemispheres of maternal and paternal rays surrounding it were inclined toward it, which, when combined, must needs flow in mediate directions. It is possible to conceive, that, by coalition, these combined counter-tending rays not only became fluid, but, in moving centreward, formed cur-

rents corresponding with those present within the sanguiferous layer of the chick. From what is actually known of the currents of electric and magnetic fluids on the earth's surface, we assume the longitudinal lines of light and darkness to be negative and positive electricity, and those bilateral to the perpendicular light and dark rays to be boreal and austral magnetism. The light or negative fluids are combinations of the earth's reflex rays with the direct rays of its maternal sun ; while the dark or positive fluids are combinations of the direct rays of the paternal sun with the reflex rays of the maternal sun, plus the reflex rays of the earth, the centremost of both being the paternal sun's rays. From what is known of their electro-magnetic attraction and prehensile adherence when brought together from counter-spherical positions, as they continuously are crossing and recrossing each other at minute distances in consequence of the earth's axial revolutions and globular form, we assume that these counter-tending rays constitute a complete membranous network on the earth's surface and on the surface of its every product. Or, rather, we infer from analogous phenomena, that its every parasitic outgrowth, whether fixed or free, is *infolded* in this surface membrane ; the latter becoming self-insulated, or "pinched off" therefrom, although basically nourished by its rays ; and also infer that the ingress and egress of the nutrient and fruital germs of each and all are *through* the pores between these reticulated lines.

The fact that the outermost plexus of nerves above the true skin, or *cutis vera*, of an animal, is not sensitive as regards the animal, either as a whole or as the inflections and sub-inflections which insulate and at the same

time unite its every eell and every tissue, corroborates the assumption that it appertains to the matrices within which the animal is consecutively gestated, and that it is an inter-repetition of that by which the entire universe of forms is collectively and individually insulated. If, as assumed, our sphere became incipient between the nucleus and atmosphere of its maternal sphere, in like manner as the germinal membrane of a chick becomes incipient within the yolk-membrane below the atmosphere of its ovum of evolution, the maternal parent's representative sphere on the embryonie plane, whieh membrane coalesces with its own inter-developed *cutis vera*, or true skin, then it is safe to infer that its basic elements *in embryo* were individuated as a prototypal membrane within like reticulated lines above the surface of the maternal sun, through whose interspaces the essences of the paternal sun's rays were absorbed as the super-basic nutriment of its prime eomounds. Now as then, its self-incasement is a boundary between two strata of solar substance, relatively plus and minus conminuted, above which its elements in their organic eapaeity cannot aseend, or those above descend: hence it is a part of the diviso-connective tissue of the solar organism introverted and extroverted within and around its interspheres down to the insulation of the ultimate spherules of each. In a word, it is the insulating membrane through which the fetal sphere draws its needed nutriment from the maternal sphere, just as a fetal animal draws its nutrient essences through the choron, whieh ultimately becomes one with *its* eutaneous membrane. Hence our assumption that the earth-sphere continuously revolves between a higher and rarer and a lower and denser stratification of solar grav-

ity, which revolution is the effect of, and is at the same time caused by, the transmission therefrom of equal quantities of their counter-tending essences which combine as its constituent elements, thence as such tend in immediate directions with mediate force; a portion of its elemental germs being continuously exchanged for those above and below its altitude. By regarding each more interior sphere as relatively female, and that by whose rays it is built up as male, we perceive that the super-nuclei or planets of the more interior or female sphere are constituted of like rays as its central nucleus or sun, but later developed, combined with their predecessors in process of re-ascent from the sun of the more interior or female sphere; the latter being minus mature compared with the paternal sun, whence the super-bases of its rays are proximately radiated, and plus mature compared with the super-suns or primary planets to which its rays are basic; that is, as regards the *now* of these primary planets whose time is intermediate, and which, in being built up of their combined rays, inherit the greater motility or maturity of the more embracing sphere, and the greater complexity in motive tendencies of the included sphere. This is a clew as to *how* male organs in less complex animals are built up within, and as a part of, the female form of their specific structure; the sunward-tending rays of each planet-sphere being male compared with the sun's direct or female rays.

We make this digression to illustrate the principle, that, on the essential plane, there is and can be no line of demarcation between parentage and offspring, or between the forms, or between the motions of the substance of **INFINITE BEING**, or between the functions of

male and female germs, except as the motive tendency of germinal substance toward and from a common centre of gravity consequent upon its minus and plus condensation compared with the mediate gravity of the sphere or form. Hence we must bear in mind that the female forms within which male forms become incipient are *maternal* thereto; their functions being mediate between the same forms of force on supermature and immature planes. Just as the rays of our sun, which become atmosphered by those of *its* sun, are remoulded through its own planet-spheres, which, relatively regarded, are male, because the atmospheric representatives of the sun's maternal sphere, so the nuclear germs of female forms become atmosphered by external germs re-moulded by passing through organs functionally male, because the representatives of the earth-sphere's supernuclei or moons, prior to their discretion from the earth.

11. Now we wish especially to show that our visible moon is the earth-sphere's atmospheric or male representative as regards its individuality; and that the sun's rays are specifically modified by passing through the stratum of substance upon which it subsists during its orbital revolution, or, rather, that which is both nutrient and ex-nutrient, or fruital to its elements. One-half of this stratum of space which we assume is a definite channel of circulation within the earth-sphere, is, as space, a fixture in its sunward hemisphere; and the other half, a fixture within its anti-sunward hemisphere; the elements of the former being condensed in the degree those of the latter are rarefied, compared with a medium density. Hence our assumption that these counter-positioned elements represent the earth's counter-parent suns functionally *in the modification of their counter-tend-*

ing rays; the same being true as regards the mouldings of the sun's counter-parent rays *in transitu* through the nether and upper hemispheres of the channels within which all its primaries or ancestral representatives circulate. This, because we perceive that the direct and reflex, or centrifugal and centripetal rays transmitted to the opposite meridian hemispheres of the earth from the moon's channel of circulation, and like rays transmitted to the opposite hemispheres of the sun from the channels of its primaries, are in equilibrium in the sense that their counter-forcitiveness aids in holding their proximate matrices—themselves as a culmination—in equilibrium, thereby reciprocating the counter-attraction of their own direct and reflex rays; the latter rays being always coincident with those from the paternal sun refracted within the maternal sphere.

All spheres in space being equally female and male in the absolute, and relatively female and male as regards the relative direction of their rays, they are as truly inter-cohered as a cluster of animal cells. Hence each contributes to nature's formation its quantitative ratio, an exact equivalent of that received, in virtue of the equal momentum of its nuclear and atmospheric equivalents.

Whether to us they be light or dark, the rays of all the orbs in space are the ultimate grade of substance, purely empyreal, and are continuously progressive and efficient as essential force; and, as the thorough-bass in nature's vital harmonies, their absolute elasticity is neither increased nor decreased by their dispersions and focalizations within the spheres of gravity through which they pass toward and from the heart of Infinite Being.

The same is true of the empyreal rays that pass to and from the counter-sexual hearts of animal organisms.

12. In studying the circulation of blood and air in the human organism as intertypal of the circulation of aqueous and aerial fluids within our strata of subsistence, we recognize the aerial stratum between the strata of surface and meteoric water as the prototype of the lower or arterial department of the lungs, and idealize sub-surface organs corresponding functionally with the right and left hearts. The right heart is formed by the union of the anterior and posterior longitudinal veins of the "vascular area," whose fluids tend toward each other, and which double over, and form its internal cavities, thence branch out as the pulmonary veins, falsely termed arteries. The left heart is formed by the bilateral arteries, whose fluids also tend toward each other, and which double over and form its cavities by the introversion of the lateral portions of the "vascular area," which branch out as the pulmonary arteries, not veins; the capillaries of the latter being mouthed at the termini of the capillaries of the pulmonary veins. These venous and arterial fluids never intermix promiscuously within the incipient hearts. Their relations of inter-combination are such that every venous capillary becomes by introversion an arterial capillary; their interchange of germs being effected post-natally within the bronchial air-cells between the capillaries of the upper or venous department of the lungs and those of the lower or arterial department. By regarding the bronchial system as a repetition of the sunward hemisphere of the super-aerial and aerial strata introverted as internal atmospheric organs, by means of which man's organism becomes disereted from the earth as a self-

moving individuality, we idealize the assumption that the bronchial air-cells—the points of anostomoses between the venous and arterial capillaries—are repetitions of the points where the earth's reflex super-aerial rays and its direct aerial rays combine with the sun's direct rays. And by regarding the pulmonary veins, falsely termed "arteries," as branches of the ascending and descending *venæ cavæ* out-tending from the right heart, whose outborn germs, when combined with atmospheric germs within the bronchial air-cells, become inborn within the pulmonary arteries, falsely termed "veins," we idealize the assumption that the fertilizing principle involved in the incipiency and growth of all forms of life within the solar sphere is the *intrinsic elasticity of the sun's rays* moulded *in transitu* through its every ancestral sphere. Although the same vital vigor is inherent in the substance of these ensphering spheres, yet, in consequence of its diffusion, it is inefficient as regards the direct procreation of the forms that constitute its sub-interspheres.

Counter-sexual organisms and counter-sexual vessels, with their myriad species of male and female miniature interforms, are simply the matrices through whose agencies the sun's rays are rendered counter-foreitive, and brought into direct opposition. It is readily perceived that the empyreal essences absorbed by the venous rootlets on the outer surface of an organism are rarefied in the degree those absorbed by the arterial rootlets within the lungs are condensed, compared with their combined density. If intertypal of those assimilated externally and internally by the earth-sphere, they represent the extremes of density at its centre and at its atmospheric superficies,—a radius elsewhere esti-

mated of about 2,980,000 miles. If, in the aggregate, the sun's rays—which from super-pressure are continuously being forced within the earth's atmosphere—increase in centripetal force from its periphery, the elastic limits of terrestrial gravity, in the ratio the force of the earth's centrifugal rays decreases from the diffusion of the same super-pressure, then the force of the sun's reflex or plus mature rays, which concentrate within the anti-sunward hemispheres of its planet-spheres, equals the force of its direct or minus mature rays that concentrate within their sunward hemispheres. This not only holds them in dynamic equilibrium, but the momenta of these direct and reflex perpendicular rays cause ebb-tides of water and air at opposite meridians above their nuclear superficies; while the lesser pressure of the sun's oblique rays at intermediate meridians permit corresponding flood-tides.

There are also corresponding tides under the perpendicular and oblique rays of their paternal sun during the revolution of their equinoxes. These latter tides are intertypes of like tides on and above the nucleus of the paternal sphere, which are repeated above the solid surface of its prime inter-suns; those on our sun being re-repeated as annual and equinoctial tides on our planet, and sub-repeated on the nucleus and super-base of our moon as its daily and monthly tides. The earth's tides are expressions of the momenta of their rays reflected from its centre. The time involved in the reflection of their momenta, the quantity and axial velocity of the orb whence they are respectively radiated, is necessarily proportional to the distance between its centre and that of the earth. The earth's daily and monthly lunar tides being expressions of the momenta

of the moon's rays projected from its nucleus and super-base during their respective axial rotations, its daily flood-tides occur about three hours after the moon has passed the zenith and nadir. Or, rather, it is the prior culmination of the aerial ebb and flood tides that forces the earth's surface-water alternately toward, thence from, the polar regions. Owing to its higher altitude and lesser associative velocity with the earth, the ebb and flood tides in the aerial stratum are more immediately under the greater and lesser pressure of the moon's perpendicular and oblique rays. These, in turn, are forced poleward, thence equatorward, by still earlier ebb and flood tides in the super-aerial stratum.

These super-aerial, aerial, and aqueous ebbs and floods are prototypes of the earlier and later ingress of air within the upper and lower hemispheres of the lungs, and the simultaneous rush of blood poleward, or toward the pulmonary air-cells, through the branches and branchlets of the venous system under the perpendicular compression of the lungs during inhalation, and the rush of blood equatorward, or toward the left heart, through the rootlets and roots of the arterial system simultaneous with the ingress of air within the bronchial tubelets of the middle layer of these vessels, and the egress from the lungs of that priorly forced from the bronchial tubelets of the middle layer of the veins under the bilateral compression of the lungs during exhalation.

It is purely in virtue of repeating the functions of its consecutively more remote ancestral spheres as the functions of its consecutively later stratifications, its culminate organs, and also as the functions of the inter-forms of each, that the earth-sphere, what they consti-

tute, outgrows into more and more mature spacial and timal eonditions.

From a perception of their needed efficiency we assume that the earth's lunar tides of water and air are correlated with an influx of water impregnated with air within its ocean depths, whose efflux thererfrom become equatorial flood tides at opposite intermediate meridians, whence their mutual repellence initiates their ebb foree.

And, from a perception of their analogy, we regard them as prototypal of the influx and efflux of blood and air within and from the hearts and lungs of the human organism; that is, the passage of dark blood from its surface, through the systcmic veins, into and through the right heart, into the upper or venous hemisphere of the lungs, thence its passage as light blood through the lower or arterial hemisphere of the lungs, into and through the left heart, thence to the surface through the systemie arteries, is intertypal of the passage of the earth's atmospheric gases from the superbase of our stratification, through its upper or darkened hemisphere, down into and from its internal reservoirs of super-aerialized water, into and through the earth's lower or illumincd hemisphere to the outer surface of the stratification as lightened or aerialized gases, thence down into and through its inter-earthly reservoirs, and through the anti-sunward hemisphere back to its superbase. We idealize these inter-earthly reservoirs as prototypes of the auricles and ventrieles of the hearts; the right heart being simply a fold in the one *vema cava* between its descnding and ascending halves; and the lcft heart a fold in the one aorta between its descnding and ascending halves. The flow of venous blood downward through the auricle, and upward through

the ventricle, of the right heart, and the flow of arterial blood downward through the auricle, and upward through the ventricle, of the left heart, is intertypal of the rotation of the earth with its inter-circulating fluids alternately through its darkened and its illumined hemispheres.

As the rays of the earth's maternal and paternal suns are respectively moulded *in transitu* through the sunward and anti-sunward hemisphere of the moon's stratification, their force within the earth-sphere is evidently in dynamic equilibrium, on the supposition that the disparity in the quantitative values and in the distances of these suns *equalizes their counter-tending momenta*. The lesser eastward velocity of the earth's surface-waters at their higher altitude, compared with its deepest ocean-waters at their lower altitude, equals the difference in time between one revolution of its dual or counter-meridian lunar tides and one revolution of the earth's solid superficies. These ebbs and floods are in reality but one respiration by our strata of subsistence; and the difference in time between their recurrence as bi-equatorial and bi-polar ebbs and floods corresponds with the difference in time between one inhalation and exhalation of air within the upper and lower hemispheres of the two lungs, and one expansion and contraction of the auricles and ventricles of the right and left, or dorsal and ventral hearts.

As regards the earth's advance eastward, its surface or lunar ebb currents, which flow diagonally poleward in both polar hemispheres, are direct or easterly on the anti-moonward meridian hemisphere, and indirect, or westerly, on the moonward hemisphere, from a lunar aspect; that is, they sustain the same relations to the

moon, that the sub-surface tides do to the sun from a solar aspect; both alike making their equatorial reversions from their opposite meridian hemispheres at the same points of time. By recognizing the earth-sphere as an actual organism, from the self-evident fact that otherwise it could not mould the organs of its inter-organisms, and recognizing the lunar sphere as a specific organ *in its own likeness*, the similarity in their vital processes, as revealed in the flow of their respective fluids, is readily perceived.

The earth's ebb surface-currents being deflected, and their atmospheric gases condensed, in accordance with its decrease in longitude poleward, those from its opposite meridian hemispheres meet each other with increasing force, and at angles of increasing obliquity; so that, as regards its centre of gravity, those on its dorsal and ventral hemispheres tend in opposite longitudinal directions in the polar regions; thence, becoming completely reversed during the earth's semi-rotation, they are forced by atmospheric pressure to flow obliquely equatorward as flood-currents. The deeper waters becoming correspondingly reversed as opposite longitudinal sub-surface currents, their upward deflection is the incoming of the flood tides. From a perception of their co-operation as organic forms of force, we recognize the earth's strata of meteoric and surface waters as prototypal of the more exterior and the more interior lymphatics, functionally male and female; within the human organism. Hence in recognizing the earth's super-aerial and sub-aerial strata — above its cloud-region and its highest mountains, and below its deepest surface-waters — as prototypal of the male and female departments of the venous system, including the portal

system, the intertype of the earth's internal rivers, we perceive that the venous system enspheres the arterial system, they being relatively male and female as wholes, in like manner as the super-aerial stratum surrounds the aerial stratum, and at the same time, through its afferent mountain rivers, is in constant communication with its internal reservoirs. That is, the earth's sub-strata receive their needed quota of super-aerial essenees,— which are predominantly hydrogen, nitrogen, oxygen, and carbon, and which as such are increasingly rarefied in the order named,— plus condensed as basic food through the afferent mountain-rivers, and receive their needed quota of like essenees — all of which are purely empyreal,— minus condensed as super-basic food, through the agency of descending aqueous vapors, rain, hail, and snow. In virtue of this, the essenees inspired by water-breathers and by cold-blooded animals are predominantly super-aerial. The same is true as regards the corpuseles developed within the portal system and within the more interior lymphatics; while those inspired by the agents of special sense within the cephalic system *above the entire lymphatic system* are alike super-aerial, but correspondingly rarefied compared with the medium density of aerial essenees,— predominantly oxygen and nitrogen. The fact that there are no lymphatics within the brain of the erect human proves that man's head is virtually *above the clouds*.

If, as this view of their constitution indicates, the contents of the venous system are nourished by quantitative equivalents of super-aerial essenees, condensed below, and expanded above, the lesser spacial disparity between the quantitative equivalents of aerial essenees

by which the contents of the arterial system are nourished, then the purple color of venous blood, and the red color of arterial blood, and the predominance of alkaline elements in biliary and urinary excretions, and the predominance of acid elements in bronchial excretions, are accounted for.

13. It must be borne in mind that the tendency of the earth's surface-water is continuously poleward, *toward the plane of its axis*, its medium altitude within the solar atmosphere, which tendency is continuously counterpoised by its axial rotation, its centrifugal force; while the greater force of its ebb tides is reversed by its more condensed polar atmosphere, and the lesser force of its flood tides by its less condensed equatorial atmosphere; that is, the expansive force of its surface-water is counterpoised by the condensive force of its atmosphere, in like manner as the influx of air into the arterial capillaries during expiration forces back the oxygenized blood-currents, which air was inhaled by the perpendicular or ebb-pressure upon the prolated or upper portion of the lungs counterpoised by the re-action of the diaphragm against the obliterated or lower portion.

Owing to the greater and lesser velocity of the earth's superficies eastward between and beyond the tropics, the greater westward tendency of its *intra-tropic* waters is counterpoised by the greater eastward tendency of its *extra-tropic* waters.

That is, their actions and re-actions are equal and opposite. Hence the bilateral ebb-currents from its opposite meridian hemispheres, which move in opposite directions as regards its centre, meet with great force within the polar regions, whence they are forced downward, and diagonally equatorward, in directions inter-

mediate between their angles of contact and the external pressure of the atmosphere. The direction of the aortal currents they become is of necessity counter to the longitudinal surface-currents or prototypal *venæ cavæ*, whose influx at the antipodal ebb-points is intermediate between the antipodal flood-points, or points of efflux where the waters involved substitute each other's spacial and timal conditions.

So the direetion of the idealized internal poleward and equatorward currents respectively represent the flow of blood in the venous branches and arterial roots of the pulmonary system. And, to carry out the analogy, we assume that the currents of water from these bi-equatorial internal reservoirs cross and recross each other in crossing and recrossing the equator, in like manner and with like results as the currents of venous and arterial blood in the pulmonary system cross and recross each other in crossing and recrossing the median line of the organism.

Although, locally regarded, these counter-tending waves culminate periodically, yet like our hearts' blood, whose pulsations repeat their reversions, the flow of water is continuous; the vital force of both extending from centre to circumference within the terrestrial organism, and eo-infinite with space and time on the essential plane, in the sense that their counter-momenta is maintained, as is the ease with all individual bodies, by a continuous exchange of their counter-tending essences. The earth's tidal waves express its diurnal, monthly, yearly, and equinoctial rotations, which, in virtue of being correlated tinally, are equally numerous on all its strata; the shortest on the lowest being repeated as wavelets on each higher. These, in becoming

reflected centreward through the series, are the needed counter-equivalents of super-pressure by means of which these rotations are maintained. Perceiving, as we do, that the points of reversion by all these tidal waves are correlated with the points of reversion by the rays of its ancestral orbs, in the sense that they are centrifugated therefrom at points corresponding with their points of reflection from the earth and its atmospheric stratification, we perceive that they are of necessity impressed upon every terrestrial form in accordance with its spherical status. If repeated on the earth as fulcral points, whence the direction of its circulating fluids were reversed, they were of necessity repeated on its contemporary incipient interforms,—its internal organs. The recently discovered fact that the weight of bodies is greater at midnight than at any other hour, and that they weigh more when the moon is in the zenith, and still more, if it be new moon, at midnight, corroborates the assumption that pressure upon the earth's atmosphere is greater under the direct and reflex perpendicular rays of the moon and sun, and lesser under their oblique rays. If, as assumed, the moon's atmosphere is continuously oblated in the direction of the earth, and the earth's atmosphere is continuously oblated in the direction of the sun, and the sun's atmosphere is continuously oblated in the direction of its sun, in accordance with the radial lines of terrestrial, solar, and super-solar gravity, the atmospheres of all being continuously prolated in opposite directions, these lines of perpendicular and oblique force never vary as such, whatever the relative position of these orbs. They simply modify each others' momentum.

CHAPTER IX.

1. IN virtue of being a sphere of gravity, the substance of the terrestrial organism *in embryo* must have passed through stages of development corresponding with those of animal cells, all of which, *in embryo*, prior to the condensation of their nuclei, and the rarefaction of their atmospheric pabula, and the formation of definite cell-walls, appear as a heterogeneous mass, like eometary substance.

In studying the conditions of this immature mass of typally-formed substance subsequent to its discretion from complete co-rotivity with the sun's superficies, we perceive that its freedom from the sun's superficial momentum was gradual, and in proportion to its increase in distance therefrom and the proportional increase of its own internal motive powers: hence its prime post-natal revolutions across the equinoctial, to and from its solstitial reverisons, were more rapid, and proportionally nearer together, and the pressure of surrounding elements greater than in the present. The elongation of its form, and the impress of its serpentine motion, were necessarily in proportion to the velocity of this pressure. Supposing it to have been anasimotic in form, like Saturn's rings, and that its anterior and posterior extremities became separated at one of its

equinoxes, like the yolk-strata of meroblastic ova, it is readily perceived that the point of greatest pressure would be on its anterior extremity. This would result in its enlargement in the ratio of its increase in density and resistance bilaterally; while the equal deficit in pressure posteriorly, with a corresponding deficit in resistance bilaterally, would cause the elongation of its posterior extremity. These changes from equal to unequal external pressure are represented in the differences in form between the larvæ of insects or worms, and the Raia genus of fishes, rays and sharks being recognized as types.

As the earth-sphere became more fully disengaged from eo-rotivity with the sun's superficies, this disparity in pressure on its anterior and posterior extremities lessened in the ratio of its decrease in orbital velocity, which, with the greater and lesser resistance *acquired* at these points of greater and lesser pressure, conditioned the gradual projection of cephalic and pectoral appendages on incipient species with a corresponding lessening in the general elongation of the posterior portions down to a simple caudal extremity, thence to its disappearance; the first posterior depressions gradually deepening as uro-genital organs.

During the increasing complexity of its internal organs of excretion, through whose agency the introverted specific germs of the animal series became separated from their excrements, the modes of moving by their external appendages increased in complexity of movement in the ratio of their decrease in number.

This view of the incipiency of our sphere indicates that its prime animal forms became incipient within its prime or innermost organ, the prototype of the ali-

mentary canal of the human organism, which prime and innermost organ, as a system of circulation, represents that of every other animal. As all the convolutions of the latter are teeming with forms of life corresponding with the status of their respective sections, we are licensed to infer that the bowels of the earth are teeming with prototypal forms in a latent or embryonic state. It must be borne in mind, that, from lack of condensation and crystallization, the aqueous and aerial systems of circulation in our strata of subsistence are simply self-bounded currents of water, air, and other more and more subtle fluids. During locomotion, the limbs of quadrupeds move rhythmically with the pulsations of their hearts and the ingress and egress of air within and from their lungs: so the sun's light and dark solstitial rays are reversed on the super-base of our stratification, and the poles of the circles they describe rise above, and fall below, the earth's axis in perfect rhythm with the alternate ingress and egress of plus and minus condensed air within and from its opposite meridian hemispheres during its rotation. As the range of these poles, the foci of the earth's counter-polar atmospheric hemispheres, compared with the mediate position of its axial poles, is four thousand miles above and below them as regards solar gravity, their essential force is alternately pitted against higher and lower, or rarer and denser points on the periphery of our stratification. If, as assumed, the bilateral or orbital pressure on our sphere has decreased in the ratio its perpendicular or axial resistance has increased, then the points where the reflex force of these atmospheric poles impinged upon the earth have gradually moved equatorward, so that it is *reflected in the present*

to the same points where the direct force of the perpendicular and oblique solstitial rays impinge upon its surface.

That is, these solstitial or reversed rays, when concentrated from the periphery of the earth's atmosphere upon the super-base of our stratification, which moves contradistinct from, and slower than, the earth's superficies, impinge upon it twenty-three and a half degrees, bilateral to its axial equator on diametrically opposite meridians. The points where the perpendicular rays are becoming reversed as oblique rays, and those where the oblique rays are becoming reversed as perpendicular rays, like the ebb-tide and flood-tide points, are diagonally paired at antipodal points: hence, like these ebbs and floods, they substitute each other's functions progressively in rhythmic periods of time, daily, annually, and equinoctially.

In assuming that the alternate plus and minus pressure of these perpendicular and oblique solstitial rays upon the super-base of our stratification continued to correspond points on the earth's surface is the super-basic force causative to its orbito-axial locomotion, in virtue of being correlated with the reflex rays of essential force from the points of impingement by their respective poles, we recognize these solstitial points as prototypes of the points on the neuro-skeleton of higher quadrupeds where their four limbs originate, thence recognize the points where these rays contact with the earth as the correspondents of the points where their feet contact with the earth during their locomotion; that is, such quadrupeds as stand with their feet directly below the origin of the limbs. Reptilian quadrupeds, such as move their limbs horizontally, are assumed

to have become existent when altitudinal pressure exceeded latitudinal pressure.

As the times of the alternations in direction in the case of all terrestrial fulcra increase simultaneously and proportionally, in accordance with the earth's increase in distance from the centre of solar gravity, which conditions its corresponding increase in axial velocity, we must widen the range of inquiry as regards the static and dynamic relations of essential substance, whose forms and motions represent the omnipresence of space and time.

2. Our highest ideal of the basic or static force of infinite gravity within its own spherical form is the direct and reflex pressure of substance as a whole toward and from the centre of infinite space, its prime focus.

Although we can have no idea of a limit to space or time, yet, from the fact that the stratifications of solar gravity to which the planets are indigenous as centrifugal nuclei decrease their orbital revolutions in the ratio of increase in distance from its focus, we can conceive of a stratification, or wheel of gravity, so distant from the focus of infinite gravity, that it is comparatively motionless; and can conceive of a prime peripheral membrane between the nuclear and atmospheric equivalents of the sphere of infinite being through which nature, or the sum of formation, assimilates its primordial atmospheric nutriment; thence, by idealizing an infinitude of spokelike lines of self-rotating atoms extending from its circumference to its centre, and *vice versa*, and which, by refraction and reflection, extend from circumference to centre, and *vice versa*, within its every intersphere, so ethereal and elastic that they pass

without change of identity through every interform of each as prime circulating media, we can obtain an approximate idea of the thorough-bass of omnipotence. In assuming that the points where the force of the extra-solar sun's solstitial, equinoctial, and polar rays are concentrated upon the super-base of our stratification are prototypal of the reflex force or super-pressure involved in the locomotion of quadrupeds, we take into account the fact, that, although the minimum of the earth's superficial motion is at the astronomic poles, yet it is the motivities of the *atmospheric* spherules of that or of any locality that determines its temperature; the tendencies of the essences they deposit being identical as force.

If, as asserted, Sir James Ross in 1832 found the needle of his compass to dip near Prince Regent's Inlet, latitude 70° north, within one minute of 90° , he was at the north magnetic pole or the maximum of cold, minus one minute of a degree. This not only shows the possibility of an open polar sea beyond, but the yearly advance of the magnetic pole $50''$ of a degree eastward accounts for the increase of cold in Greenland, which was known to have had a flourishing colony six hundred years ago,—now almost uninhabitable. Taking it as granted, that, like its interspheres, the solar system has its alternations of day and night, and of summer and winter, inherited from its parent spheres, the unmistakable records of intense heat and intense cold, and of the existence of living forms in great abundance, and their total extinction in regular alternation, and also of elements diametrically opposite in their chemical qualities within the earth's sub-strata, are readily accounted for. This, because *the substance of things in-*

herits the tendencies resulting from its spacial and timal conditions in every minutia. Even the epicycles diurnally deseribed by the marginal lines of light and darkness in the frigid zones upon the annual epieycles, that, in turn, deseribe the polar eireles during an equinoctial year, are transmitted to and repeated by the spherules, whose forms of moving are *per se* the phenomena, all of which are intact as the struetural proelivities of the forms they help to constitute. Licensed by terrestrial phenomena, we infer, that when the solar system arrived at its extreme northern latitude, where its maternal sun apparently "stood still," changes correspoding with those that oeeur from the low temperature of our northern winters oecurred within its northern hemisphere. If so, not a billionth of its forms of life survived the intense cold. And we also infer, that, as it passed through the southern hemisphere of its ensphering sphere, the changes produced in its northern and southern hemispheres were prototypal of those produced within the northern and southern hemispheres of the earth-sphere during its passage from *its* vernal to *its* autumnal equinox. While its northern hemisphere was being re-peopled by the reproduction of its old forms of life differentiated by different conditions, with myriads of new types *born* of the new conditios, its southern hemisphere was becoming depopulated, myriads of old types beeoming extinet as such by transformation into more complex types. No less range of *space* than that ineluded within the orbit of the solar system and the *time* of its revolution around its sun,— estimated at eighteen million years,— whose distanee, if proportional thereto, as are the *times* of the revolution of the planets to their distanee from their sun, is ealeulable, can afford

sufficient scope wherein to obtain a clew to the incalculably numerous motive tendencies inherited by the earth's specific and nutrient types of form on the essential plane. These types, by inner and sub-inner combination within ever-lessening areas of space during ever-lessening periods of time, have become the structures and functions of its constituent forms — itself as a whole. As one complete oscillation of the plane of the *extra-solar sun's* perpendicular rays — assumed to be its equator of *extra-solar* magnetism — across the equinoctial, from its highest latitudes north to its highest latitudes south, and *vice versa* on the earth's surface at its altitude within the solar sphere, involves 25,868 oscillations of the plane of the *intra-solar sun's* perpendicular rays, the former rays are the static counterparts of the latter. And, as the range of this circle of comparatively static magnetism is traceable, it should be delineated on geographical charts as guides in determining the past, present, and future thermo-luminous and electro-magnetic conditions of different localities, and also as data from which to determine the advent of different surface-forms and their subsequent changes in structure and function consequent upon the increasing refinement and mobility of its nutrient substance in the ratio of its increasing altitude. However difficult to describe in detail, the principles of formation are understandable, if we but bear in mind that the consecutively more distant suns whence the rays of substance by which their interspheres and the interforms of said spheres are nourished from their incipiency, are repeated as the nuclei of their consecutively more outer strata or systems of circulation.

3. In going back to first principles, we recognize the

prime rays of essential substance centrifugated from the nucleus, or sun of infinite gravity, as *reflections* of the rays of primordial essences priorly centripetated from its all-embracing atmosphere: hence, however numerous the offspring of this prime atmosphere and prime nucleus, each is an image of its original ancestors; and the nucleus of each more interior sphere *reflects* the rays of essential substance centripetated through its atmospheric counterpart in an additional direction, that is, from a new and more interior centre. This new motive tendency expresses itself within the spherical limits of the more interior sphere through the incipiency and growth of a corresponding *form of force* in virtue of the centripetation therein of like essences from its proximate sphere of subsistence, which, when combined therewith within said form, *atmosphere* its centrifugal essences. Plus and minus spacial spheres proximately embraced or conjugated as one are relatively counter-sexual in the sense that the essences moulded *in transitu* through their constituent *forms of force* or organs are counter-nutrient, the motive tendencies of those interiorly received as basic food being ex-centreward or female; while those received through the external surface-pores are centre-tending or male. Although the essential germs that constitute the specific embryo of their common offspring are equally fruitful to the paternal and maternal organisms, yet, in the matter of kinship, the maternal parent is *nearer*, in the sense that the nutrient essences of the paternal germs involved are *re-moulded* within the maternal organism or its representative, the essences fruitful to its every element nucleated as the constituent essences of her meroblastic ova. Female germs represent the expansive

foree of the sun's earlier rays *reflected* from the earth. Male germs represent the condensive force of the sun's later rays *converging* toward it. When combined as a universe of embryo elemental spherules within the spaciality of their typal structure, they are capaeitated, under favorable nutrient conditions, to grow up to its actuality on the mature plane as regards human perceptivity, which plane is intermediate between the lesser maturity of the nuclei of these spherules and the greater maturity of their atmospheres: hence their elevation to the paternal or atmospheric plane in their organic capacity as the essentially living organism of the objective strueture necessitates the escape therefrom of the atmospheric equivalents of these spherules.

4. As to how the forms of life destroyed during winter are repeated during summer, we assume that the spacial and timal conditions involved in the alternate contraction and expansion of the earth's polar hemispheres by cold and heat,—the lateney and activity of empyreal spherules,—and in its meridian hemispheres by darkness and light, the positivity or plus condensiveness, and the negativity or plus expansiveness, of said spherules, are inherent in every spherule of every form. The alternate ingress and egress of thermal and gelid essences within and from the polar hemispheres, and the alternate ingress and egress of luminous and non-luminous essenees within and from the meridian hemispheres of the carth, are continuous: so the alternate ingress and egress of like counter-nutrient or vital essenees within and from the polar and meridian hemispheres of its every spherule, are continuous. The activities involved in the ingress of nutrient essenees, their temporary equilibrium during satiation, and the egress of a quantitative

equivalent of like essenees within and from its eonstituent spherules, is the life of each organism: hence, whether its vital essenees are discreted from their nuclear counterparts, their ova on the ovum or immature plane, or simply latent, the substance of the latter is revivified, either segregately or aggregately, by the ingress and circulation of thermo-luminous or electro-magnetic essenees, which are as truly present and as really efficient in their restoration at the termination of an apsidial winter as of an annual winter. This, because the earth-sphere—like its prime prototype, the sphere of infinite being—is an ovum or nucleated sphere of gravity in process of evolution, hence is in the present what it ever has been and ever must be; viz., a correlation of *self-conditioned mechanical forces*.

5. If our sphere is adapted to individuate and gestate more and more complex forms in virtue of the continuous outgrowth of nature as the wholeness of formation into higher and higher altitudes from the centre of infinite space, by subjeeting as nutriment their indigenous essenees, the same ability is transmitted to its internal organs or organisms, and is manifest in their structural proclivities in accordance with their status of complexity and maturity. The analogy between water-breathing and air-breathing animal and vegetable forms, and their increase in complexity as they rise above the base of their respective strata, is our license for assuming that this complexity is typally inherent or possible to all; and that it becomes expressed in and through the ascension of their super-basic germs into intermediately higher strata and higher altitudes therein, when combined with like germs fruital to like forms indigenous to still higher strata and higher altitudes

therein. For example: sea-lions are combinations of the same mechanical powers as land-lions; and the fact that the former's lesser mobility is in their lungs and organs of locomotion, and is proportional to the lesser mobility of the compounds they are in contact with, whose essences are, per force, their nutriment, is self-evidence that the maturement of the elements upon which forms subsist is alike causative to, and the effect of, the maturement of that to which they are constituent. Progress, as regards our plane, begins with the aggregation of substance in forms objective to our senses, next the extension of forms into increasing areas of space, thence the refinement of forms.

The normal limits of our plane of sense-perception being definite, substance must be condensed and extended to certain definite degrees in order to procreate sensations; but when a certain definite degree of refinement is attained, however dense, or however extended, the forms, as such, are not on the normal plane of human perceptivity. Now, inasmuch as the absolute existence of these forms is demonstrated by artificial condensation and extension, we perceive that there is no other line of demarcation between the seen and unseen, save the limits of our present plane of perception. And yet there are eminent philosophers who virtually ignore the existence of things outside the range of artificially-aided sense-perception. Although lower aerial forms reveal themselves in such abundance as symmetrical snow-crystals, defunct aqueous vapors whose organic essences have ascended to higher altitudes, yet their efficiency as *currental forms of moving* within the aerial stratum is never taken into account as in any way connected with formation in lower strata.

And yet all nature is witness to the fact that every form procreates its basic form, the likeness of its own structure *in embryo* within the stratum to which it is constituent.

6. There is no such thing as a *barren* form of substance: all alike are continuously conceiving, gestating, and parturiating the elemental germs of their commensals received as nutriment, each of which germs is an essential representative of the motive powers or qualities of the form to which it is fruital *within* the form to which it becomes nutrient. When nucleated as specific offspring, the elemental germs involved are no nearer akin to either parent than they are as simple elementary offspring, because correlated equally with the other parent. The fact that each ultimate germ of substance is of necessity inseparably correlated with its especial counterpart as counter-points in space and time in the thorough-bass of vital harmony on the essential plane of subsistence is positive evidence, not only of the perfect dynamic equilibrity of the counter-sexual functions, but of the numerical equilibrity of counter-sexual forms.

The difference in complexity between animals of distinct specific structure extends to their indigenous parasites as truly as it does to their blood-corpuseles, or to their protozoan offspring: hence our assumption that it is the organic essences or essential organisms of intestinal parasites, constituted of the fruital essences excreted therein from its superjacent systems of circulation, that become inborn within their various absorbents—lacteal, lymphatic, sanguiferous, and nervous—as the *bases* of corresponding germs in process of descent thereto; and that, in growing up to maturity as the

matrices of corresponding germs within these different systems, they represent the various elements, compounds, and complex forms, indigenous to the earthy, the aqueous, the aerial, and super-aerial strata of our stratification of the earth-sphere.

Only as we perceive that the essential germs that constitute the embryo elements of the earth's successive strata are constituted of the sun's earlier rays in process of reflection from the earth, combined with its later rays simultaneously centring toward it, in the sense of becoming equilibrated as such by the diametric opposition of their counter-tending forceitiveness, can we perceive the modifications produced upon like germs ascending and descending through the inter-spaces between their elemental and compound spherules, or perceive that these prime stratal formations are of necessity forced *apart* by the combination of the radial germs forced in between them from below and from above their intermediate altitude, the direction of whose combined motive forces cause their circulation at right angles to the perpendicular counter-tending parent rays.

From this ideal stand-point we not only visualize the invisible boundaries between the higher strata of our stratification, but we idealize the self-evident fact that these strata, with their indigenous interforms, are necessarily repeated within each interform up to their respective status of complexity as the interior directive or soul-force of each, the sum of which is the directive force of the stratification; that of all its stratifications being, in turn, the interior directive force of the earth-sphere as an individual organ of the solar sphere. This, because our stratification, or world of

embryo forms, like the *generative organs* of each, is not only intermediate between its proximate nuclear and atmospheric strata, but intermediate between the co-equivalents of nuclear and atmospheric elements that make up the earth-sphere as a whole.

7. Its directiveness is apparent when we reflect, that, spacially regarded, it is the limital range of intermediacy between the centripetal and centrifugal forces of the entire sphere by whose intermediate counter-sexual functions the germs fruitful to the elements of all priorly developed forms, nuclear and atmospheric, are mediately condensed and combined as their more and more complex representatives, — their substitutes on the embryo plane. But for this, the ascension of these prior or parental forms into consecutively higher strata were impossible. Although the ascension of their essential organisms as individuals and as a whole is inevitable, because of the maturement and consequent expansion of their specifically combined essential germs, below which the embryo essential germs of the entire sphere are continuously becoming forced by super-pressure, yet this limital range of intermediate force is forever intact as a definite spaciality regardless of its spherical out-growth. So the inbirth of the specific essential types of our stratification as nutriment within the chylo-lymphatic or lowest currental system in our organisms, and their maturement as its indigenous corpuscles, forces the more mature and more expanded essential organisms priorly developed therefrom *into* and *as* the temporary constituents of the sanguiferous system, within which by maturation they become fitted for a still higher state of existence. The analogy between the various processes by which different species of water-

breathers become fitted to exist within the earth's aerial stratum, and those by which the different species of chyle-corpuscles are fitted to enter the sanguiferous system from the thoracic duct somatically alive, is strikingly apparent when the attention is once directed to it.

"This duct, which commences in the abdomen, in front of the lower portion of the spinal column, thence ascends through the diaphragm, to the lower part of the neck, makes here a short turn downward and forward, and terminates by opening into a large vein whose blood flows to the right heart." It lies anterior to the spine, beside the aorta and the œsophagus, whose fluids tend in a direction diametrically opposite to the flow of the thoracic fluids, whose centrifugal force is just sufficient to carry them above the organism's introverted atmospheric strata: hence we assume that their limital range of egress corresponds with that of the educting force of the earth's highest mountain-springs, above which the somatic life of air-breathing animals cannot be maintained. As all the earth's solid and liquid elements exist in its atmosphere in counter-spacial conditions, the latter descending correlativevly with the ascent of the former, there is necessarily a limital altitude to which each form they become is adapted to ascend without transformation. Certain insects require but one transformation to rise to an altitude above their larval stratum, earthy or aqueous as the case may be, which is attainable by other species only by means of several transformations. Corresponding changes in the structure of the chyle-corpuscles are effected during their passage through the "mesentery glands." Situated between two layers of the serous membrane (mesentery), — a dual-sexed plexus of nerve-fibres, — these

glandular evolutions of the lacteals increase their nervo-vital or empyreal force in the ratio they increase their surface, and condense their substance. Being, like all glandular forms, nucleations of expansive essences, these convoluted vessels communicate like tendencies to their fluid interforms. And in like manner as these parent vessels increase in size as they decrease in number, so the eilia, by means of which their corpuseles move individually, decrease in number as they increase in strength and in complexity of movement. These primal forms and funtions accord with the assumption that dual-layered membranes, constituted of reticulated lines of empyreal essences radiated from opposing directions, and held together by the inter-adherence of their atmospheric rays of opposing force, *are the prime parents of all differentiated forms above that of simple atomic condensation.* Thence that like layers of like substance become formed between them, but, from inheriting their combined or mediate motive tendencies, their fluids flow at right angles to the former as embryo spherules, which, in consequence of minus and plus super-pressure, become distinct cells *by the introversion of their lower layers as nuclei, and the extroversion of their upper layers as atmospheres.* Thence that, in the order of their development, the anterior portion of each later and more inner cell becomes tubularly attached to the posterior portion of its predecessor as incipient vessels, which ex-centre-tending vessels at the limit of the centrifugal force of the parent layers, *return to their source of basic nutriment as centre-tending vessels.* This is why the lacteals at their anastomosing points in the villa upon the mucous surface of the small intestines appear to be looped, as do the nerves, the lymphatics, and the blood-

vessels, at the points of anastomoses between those tending toward, and those tending from, their respective nuclei of central force. Although the fluids of these male and female vessels flow continuously, yet they are by no means "closed currents" only in the sense that the roots of each are continuously absorbing the ripened germs from the others' branches subsequent to their enspheration by essential substance external to both. In addition to the continuous exchange of essential germs between the interforms of each system of circulation, there is a continuous exchange between each system and every other, either directly or indirectly, in like manner as there is between all air-breathers and between water-breathers, and between each stratum and every other stratum within which their different species of elemental food become developed.

8. In virtue of the anastomoses of their constituent cells, each of which is independently generative in the sense of moulding its ripened germs or ex-nutrient substance into like tendencies as those that constitute its selfhood, the male and female vessels of each system are capacitated to project branch systems from every point of looping or reversion, as the needs of the organism demand: hence, at the points of greatest pressure, the nerves build up solid bones, adequate not only to *resist* the pressure that conditioned the needed condensation, but to overcome it sufficiently to obtain the nutriment needed to mature its organs of defence and offence in accordance with its typal structure, which determines its mission or uses in the organism of nature. At points of lessening pressure, they build up less and less resistant tissues, cartilages, tendons, fibres, muscles, and their respective fluids. This is primarily effected

through the agency of the empyreal or nervo-vital grade of substance, next by the agency of chyle and lymph, thence through the agency of the blood, the common offspring of the former fluids. The movement of all its vessels, as also of the bones, by the contraction and expansion of their semi-solid muscles, is effected by the nerves of motion and sense in response to minus and plus super-pressure through the counter-forcitiveness of the *elastic gases* and the *non-elastic liquids* they conduct. The lessening number of vessels and of the appendages to the internal or neuro-skeleton by coalition in the animal series, conditions a corresponding increase in the complexity of movement in the lessened number. This is identical in principle with the involution of the more numerous but simpler organs of preceding animals as the more complex but less numerous organs of succeeding animals, which is effected by the inbirth of the essential germs fruital to the former as the essential constituents of the latter; each and all increasing in complexity in virtue of their commensal gestation.

This accounts for the existence of an incomparably greater number of smaller and less complex species. If, as is clearly evident, all the tissues of an organism are built up of ultimate atoms tending toward each other with equal force from opposing directions, which staticise as form at definite points on every side of the counter-tending currents, thereby form their conducting vessels, then each conductor of its essential fluids is developed or vegetates *in position*, and not by the progressive movement of its roots, trunks, and branches, as such. The functions of conducting vessels are simply fulcral; while the functions of the fluids they

conduct are transitional,—*supplementary condition of existence*. It is the soul or vital agents of these vital agents, static and dynamic, that constitute the essential organism. The external vascular organism they build up is constituted of like elements, but in a comparatively static or immature condition, which latency conditions the culminate expression of the motive forces pertaining to the organically related entities that make up its living, self-sentient soul.

This is why the latently organized elements of the former cannot ascend to higher altitudes as a whole, as do the individually active essential germs organically correlated as its temporary structural proclivities. At somatic death its ultimate germs are not dead, but simply latent, like those of its basic food prior to digestion. The static tissues of a living organism being of the same grade of substance as the fluids they convey, their degrees of contraction and expansion are necessarily proportional; and as it outgrows under the pressure of the atmosphere, whose essential substance directly or indirectly received constitutes its growth, its resistant surface-force equals the persistent force of the atmosphere estimated at fifteen pounds per square inch. Its tissues *in embryo* are condensed in the degree its pre-nutrient, or rather *their pre-constituent*, substance was priorly expanded compared with their mature density. The bones are nourished by, and are the conductors of, the most subtle fluids,—the nervous: hence their great power of resistance, when, by the force of the will, the culminate nerve-force of the organism, the sentient nerves inhale and concentrate within their lunglets and inter-vascular bronchia the essences of the surrounding atmosphere assimilated

from those condensed within the pulmonary and cutaneous air-cells. The meditately condensed tissues, being nourished by the fruital essences of their meditately condensed interforms, are the mediate agents that multiply the vital forces of the nervous system, just as the earth's intermediate forms temporarily embody and mould the grade of substance that becomes the nervo-vital germs of human sentience.

9. Inasmuch as the essential vitality of the earth's objective or nuclear organisms is *per se* the organic functions of the empyreal grade of atmospheric essences assimilated as nutriment, and which is contradistinctly individualized within *their* nuclear moulds as their atmospheric counterparts or essential organisms, our reference to the objective evidence of their continued existence and efficiency is indispensable. This, because we cannot account for a single motion of these nuclear organisms, only as we recognize them as being in response to the direct action of their nutrient essences.

For example, when the sapid, the odorous, the luminous, and sonorous essences fruital to external forms are inborn within the organs of special sense to which they are respectively nutrient, in combining with the essences fruital to these organs, thereby equalizing their motive tendencies, the former condense in the degree the latter expand. This causes correlative or rhythmic contractions and expansions of the vessels, thereby effect their continued propulsion.

The fact that every blood-vessel is developed between a nerve and a lymphatic — from which it receives its needed quota of nervo-vital and lymphatic fluids (predominantly meteoric and surface water) in exchange for its own fluids (predominantly aerial gases) — is our

license for assuming that every muscle-fibre is a blood-vessel, and is also developed between, and nourished by, a nerve-fibre and a lymphatic fibre, hence that all alike, including the fibrous or inner coat of the larger blood-vessels, are vascular, and inter-combined in the tendonous tissues by whose prehensile actions and re-actions the solid skeleton is moved in response to external impressions conveyed to the sensor nerves through the motor nerves. Licensed by analogy, we assume that the nerves of motion and sense sustain the same nutrient relations as the veins and arteries; that is, they anastomose at their loopings, the former being rooted in the non-sensitive epidermis, and the latter terminating in the *cutis vera*. As both are of necessity simultaneously impressed, they act and re-act at the same time with equal force, but in opposite directions, as regards the flow of their fluids. The nerves of general sense are receptive to the modes of motion by every grade of empyreal essences, because aggregations of every grade; while those of special sense are receptive to the specific grade of which they are respectively aggregated.

Hence it is only through the agency of our dual sense of temperature and tangibility that our nerves of special sense manifest their conscious knowledge of the abstract qualities of external nature.

10. Although inseparably correlated and complementary to each other's specific existence, like male and female animals, yet the venous and arterial systems of circulation are functionally distinct, as are the motor and sensor nerves, whose actions and re-actions are *per se* their organic vitality. That is, the veins, under the counter-elastic forceitiveness of their motor and sensor

nerves, propel the blood from the serous and mucous layers of the whilom germinal membrane, to the middle or pulmonary layer, after its impregnation by minus condensed aerial and aqueous fluids; while the arteries, under like counter-agencies, propel the blood therefrom to the serous and mucous layers after its impregnation by like fluids plus condensed. The functions of both systems are necessarily both male and female as regards their roots and branches.

The condensive force of the male department of the veins, its roots, is just sufficient to counterpoise the expansive force of its female or branch department: hence the latter, which extends from the right heart to the pulmonary air-cells, gestates and elevates the aerial germs concentrated within the right heart by the former up to this altitude,—no farther.

But such of these germs as are absorbed within the male or centripetal department of the arteries, which extends from their pulmonary rootlets to the left heart, become so condensed at this culminate focus of their cycle of gravity, that their expansive elasticity within the female or centrifugal department is sufficient to elevate them to the cutaneous air-cells,—the altitude of their inbirth within the male department of the venous system. Centripetal force as a primordial function is the condensation of the entirety of essential substance by its own weight consequent upon a decrease of expansiveness ex-centreward conversely as the square of distance, which results in direct lines of pressure toward the focus of infinite gravity, which direction represents the male function in the sense that the substance involved is the PRIME PROCREATIVE ESSENCE. Centrifugal force is the expansion of condensed substance, which,

in the absolute, results in its movement in lines of direct pressure *from* the centre of infinite gravity ; which direction represents the female function, in the sense that the upward pressure or resistance of the essences involved counterpoises the downward pressure or persistence of the quantitative equivalents of descending essences with which they become atomically atmosphered, and inseparably conjoined, as the PRIME ELEMENTS OF FORM.

The combination of these prime centripetal and centrifugal forces is CIRCULAR or CONJUGAL FORCE, the counter-tending essences fruital to these elements, which, per force of the counterpart needs resulting from their lesser and greater maturity as counterpart or correlative forces, are everywhere and forever being exchanged on the essential plane as essential nutriment. The plus and minus condensed essences thus exchanged are recognized as negative and positive electricity and magnetism on the embryonic plane of maturity ; being recognized as heat and light above and below a medium degree of intensity on the mature plane of human perceptivity. It is only in their spherical relations that the sexual functions of the circulatory systems in animal forms, including the cephalic system, are traceable.

In the latter the female essences or essential germs within the organs of special sense are the same grade of empyreal substance as the male essences fruital to external forms by which they become inseparably atmosphered ; but they are on the immature plane, the male germs being on the super-mature plane, while the sentient agents they become are on the intermediate or mature plane. Viewed in this light, the pulmonary system of the human organism is a repetition of the

counter-tending currents within the ventral hemisphere of the earth-sphere infolded within its maternal and paternal spheres; the ex-centre-tending rays of the former, which are primarily reflected around it, being prototypal of the systemic arterial currents that outflow from the left or inner heart; while the relatively centre-tending rays of the latter, which are secondarily reflected around it, are prototypal of the systemic venous currents that flow into the right or outer heart. The *détour* of these venous currents within the portal system, and also the *détour* of the pulmonary venous currents within the middle lobe of the right lung, represent the *détours* of the paternal sun's rays within the lunar stratifications of the earth-sphere.

Immediately below the non-sentient epidermis,—assumed to appertain to the matrice within which the organism is moulded, is the sensitive plexus of nerves,—the serous layer of the germinal membrane that becomes the outer fold of the amniotic sac. This plexus, which, during fetal gestation, coalesces with the non-sensitive plexus, as does the membrane that lines the shell of meroblastic ova, is functionally male; the inner amniotic fold, that portion of the serous layer proximately reflected around the embryo, termed the "amnion," being functionally female. That is, the "allantoin" membrane, their common offspring, which originates at the culminate points of anastomosis between counter-tending lymphatics, is generated between and nourished by the counter-tending fluids fruital to these counter-positioned folds, in like manner as its incipient sanguiferous layer was developed on the aqueous plane between the serous and mucous layers of the prime germinal membrane. The allantoin layers are outgrowths

of that portion of the sanguiferous or "vaseular area" that primarily infolds the embryo and the portion that extends over the food-yolk termed the "vitelline" vessels. The lateral portions, which become introverted as its arterial system during the absorption of the yolk, are also double; the introverted portion being functionally female, while the functions of the extroverted portions are male: consequently the outer fold of the allantoin is the base of the venous rootlets and the super-base of the arterial branchlets; while the inner fold is the base of the arterial rootlets, and the super-base of the venous branchlets.

The assumption that these amniotic folds are intertypes of the strata of surface and meteoric water by which our planet is infolded, between which its stratum of air is developed, is based upon the perception that the basis of air, oxygen, is fruital to surface-water; and its super-basis, nitrogen, is fruital to the ammonia of the super-aerial stratum.

Not only is there a continuous interchange of counter-conditioned essences between the earth's surface and cloud-land, through the agency of aqueous vapors, but the projection of the earth's internal rivers, its arteries, through its mountains, into communication with the super-aerial stratum, whence it absorbs its fluids as basic food, is prototypal of the arteries and veins in the outer fold of the allantoin, through whose agency a viviparous embryo obtains its needed quota of atmospheric fluids through the maternal organism. Oviparous embryos obtain like fluids, through the shell-pores of their ova of evolution.

The fact that the veins of the allantoin that tend toward the right heart through the kidneys (the points

of culminate anastomoses between the nerves and lymphatics, inleading through the portal system to the lungs, and those outleading therefrom to the cutaneous surface, and back to the kidneys), and which become conjoined with the abdominal and splenie veins before passing through the liver to the right heart, clearly indicate that their roots absorb fluids plus condensed, compared with those absorbed by the veins rooted in the cutaneous air-cells. This strengthens the assumption that the inner and outer folds of the amniotic sac, between which the counter-tending *internal* veins and arteries take their rise, are intertypes of the earth's strata of surfacæ and meteoric water within its sunward and anti-sunward hemispheres, through whose counter-tending rays aqueo-earthly and super-aerial or counter-condensed essences are brought into combination within, and as the constituent compounds and complex forms of the aerial stratum.

The reflection of the pleura, the representative of the sunward or ventral hemisphere of the earth's atmosphere, below the roots of the lungs, above the alimentary, its representative earth, whence the lungs outgrow until "pinched off" by the foldings-in of the serous layers that ultimately sustain them, is the means by which the organism attains its power to move from place to place on the earth's surface. This process of insulation is identical with the individuation of the chick's ovum of evolution within its maternal sphere, the organism of the female parent. Every ovum, as also every self-moving form, becomes disengaged from associative vitality with its proximate sphere of gravity, by becoming separately insulated by the same peripheral membrane, which membrane extends back to that of

each consecutive ante-proximate sphere, back to that by which the whole of formation is discreted from its co-equivalent of primordial essence, its atmospheric pabula.

The force transmitted to the earth-sphere, and assimilated within its ventral and dorsal hemispheres, in virtue of the rhythmic revolution of its internal stratifications, is respectively the sun's plus-condensed light rays, and its minus-condensed dark rays, in continuous alternation; while the force received by the organism, through the agency of the blood-vessels and their nutrient nerves and lymphatics, is the empyreal vitality of these rays, proportionally re-condensed within its ventral or earthward, and dorsal or anti-earthward, hemispheres. This, because its opposing meridian hemispheres are repetitions of those of the earth-sphere, transmitted from *its* counter-parent spheres. Hence, in like manner as the earthy and atmospheric strata of our stratification have distinct equinoctial points, whence their equivalents of bilateral agents act and re-act correlative, so each system of circulation in air-breathing vertebrates has its points of articulation on their common median line, whence its bilateral nuclei act and re-act upon each other in continuous alternation, by projecting their essential agents of force from each to each diagonally *across their common axis of motion*.

In man's erect organism, these strata are repeated in the same order as in the stratification whence they draw their respective nutrient essences. Their common axis of motion is on the spine, between the twelve anterior and the twelve posterior vertebrae, opposite the navel: the points of coalition between the folds of the serous layer of the germinal membrane being *between the kidney*.

neys, and that of the allantoin membrane *between the lungs*; that is, at equal distances below and above their common axis. The fact that the right kidney, whose functions are correlated with those of the right lower limb, is higher than the left, whose functions co-act with those of the left lower limb, and that the right lung is higher than the left, whose functions sustain like relations to those of the upper limbs, is self-evidence that their equinoctial meridians, which conjoin their equivalents of bilateral force, are *inclined* toward the vertebral column, the representative of the earth's equator; and that their lines of equatorial force cross the spinal axis on the principal meridian of each, *midway between the counter-functional nuclei of the organism's aqueous and aerial strata*. This indicates that the equators of the aqueous, the aerial, and super-aerial strata cross the earth's axial equator at different *points*, and at different *times*. Yet the fact that the motive forces of their representatives within the human organism are so inter-complexed that they act and re-act synchronously as one *form of force*, reveals the fact that these strata are inter-complexed, and are being individuated as a self-insulated and self-motile stratification, a distinct world, like its self-moving individual forms. This is comprehensible if we but bear in mind that the spaces passed over, and the periods of time between their passage across their common equinoctial, are correlated. For example, the space and time involved in the axial rotation of the entire earth-sphere are proportional to the spaces passed over and the times involved in the $365\frac{1}{4}$ axial rotations of its nucleus; and its 25.868 annual revolutions are timally correlated with the spaces passed over during one revolution of its equinoxes.

The atmospheric equators of the earth's every stratum and stratification being the circles described by the sun's perpendicular and its most oblique inter-tropic rays, their planes move rhythmically with the plane of its nuclear equator.

If, as assumed, the plane of equatorial rays on the outermost stratification makes but one oscillation during one rolling over of the entire sphere, it is the correlative of that of each lower; that of each being spacially and timally correlated with the plane of the earth's equatorial rays. And it is in virtue of the correlative condensations and expansions of their equivalents of substance, superinduced by like rhythmic changes in the spacial and timal conditions of substance external thereto, that the former planes force the equator of their common nucleus from side to side across the plane of its direct daily advance, which culminates as the annual oscillation of the entire sphere across the equinoctial.

Like atmospheric or super-forces are assumed to be provisional to the rhythmic motive forces inherent in the lower and upper limbs of humans, although the nuclei of the currental systems of the latter are plus complex in the degree those of the former are plus mature.

That is, the right and left kidneys, as the nuclear representatives of the anti-sunward and sunward hemispheres of the strata of surface and meteoric water, between which the aerial stratum was subsequently developed, are more mature than the latter's intertype, the sanguiferous system, which, in being the representative of all its predecessors, is correspondingly more complex.

By regarding the greater and lesser elevation and mobility of the right and left nuclei of these strata in the human organism, which fulerate the movements of the right and left higher and lower limbs, as intertypal of the greater and lesser spaciality of the aphelion and perihelion hemisphere of its orbit, and the greater and lesser extension of time involved in its passage through them, we perceive the wherfore that the movements of the anterior or anti-earthward portions of the entire organism are more complicated than those of the earthward portions, on the assumption that the anterior portion of the terrestrial organism has become erected toward the sun. The lesser pressure on the anterior portions of erect humans conditions greater freedom in the movements of their circulating fluids.

In accordance with the principle that constituent forms are miniature representatives *seriatim* of the outer forms within which they become developed, in the order of their increasing complexity, we regard the convoluted alimentary canal, and the convoluted ducts that constitute the pancreatic gland developed between the liver and spleen, as prototypes of the earth and moon developed between the *intra* and *extra* solar suns.

The next earlier nuclear organs in the animal series are the renal glands, the representatives of these parent orbs on the nervo-lymphatic or aqueous plane, provisional to the development of their nuclei, the genital and urinary glands; the functions of which as wholes are female, in the sense that their convoluted vessels are plus condensed in the degree the nerves and lymphatics of the male departments, including their super-nuclei, are minus condensed compared with their aggregate density.

The next more complex nuclei are the right and left hearts, the representatives of these parent suns on the sanguiferous or aerial plane, to which the blood-vessels of the pulmonary and systemic systems are atmospheric. The medulla oblongata, to which the lower and higher brain are atmospheric, represent these parent suns on the cephalic or super-aerial plane. Hence we recognize the ganglia of special sense — taste, smell, sound, and sight — developed between them, the sentient representatives of the earth-sphere's animal series on their different planes of subsistence within the earthy, the aqueous, the aerial, and the super-aerial strata that make up our world. As wholes, they represent respectively the female or nuclear equivalents of atmospheres of counter-conditioned aqueous and atmospheric elements, in-reaching and outreaching toward and from all their more inner and more outer parent spheres.

11. If, as we are forced to admit, the essences radiated from the orbs that make up the nuclear or objective organism of the universe, and those inflowing from its atmosphere, are the bases and super-bases of all objective and non-objective inter-forms, then the funtions, or modes of moving, by those consecutively more exterior are *necessarily* inter-repeated, as the funtions of those consecutively more interior. Hence our assumption that the movements of the four limbs of the earth's higher animals are repetitions of corresponding movements by the poles of the earth's atmospheric equators, in consequence of their bilateral oscillations from their solstitial reversions. The movement of their central axes of locomotion, above and below and bilateral to their line of direct advancee, assumed to be a repetition of the movement of the earth's eentral axis, above

and below and bilateral to its line of direct advance, is clearly illustrated in the locomotion of its more complex animals. It is also evidence that there is a continuous alternation of minus and plus external pressure upon the fluids of the internal organs, the direction of whose combined motive tendencies determine the movement of their limbs; and also a continuous alternation of actions and re-actions between the magnetism radiating from their feet and that radiating from the surfaces upon which they walk, the combined propulsive force of which, modified by the *form* of their feet, and the direction of their will-power as determined by their general condition, effects their locomotion. All internal organs are generative in the sense that they mould the germs that constitute the bases of the external appendages, through whose functions the inner needs of the organism become expressed. It is the motive tendencies of the fluids, nutrient and ex-nutrient to their internal organs, injected and projected through their sensor-motor nerves to every cell of these appendages, that determine their structural proclivities. External nutrient atoms are the sentient agents, that represent the *external universe* within its *internal universes*; the ex-nutrient atoms of the latter being the responsive agents, that represent the *internal universes* within the *external universe*. From the fact that the branchlets of the portal vein sustain the same relations to the hepatic blood-vessels that the urinary tubelets do to the renal blood-vessels, or that the bronchial tubelets do to the entire blood-vessels, we perceive that all are developed from one general plan; the counter-polar nuclei of each succeeding system being more complex. If the portal system is the connecting link between the alimentary, the

aqueous, and aerial strata in man's organism, in like manner as the earth's internal rivers, whose centrifugal force, as manifested by the flow of water from artesian wells, increases in the ratio of their increasing depth, are connecting links between *its* bowels and *its* aqueous and aerial strata, then, by parity of reasoning, the cranial system are connecting links between these inner systems, through whose culminate generative functions his physical organism is developed, and their atmospheric counterparts, through whose culminate functions his metaphysical organism, *the ideals involved in the physical*, are developed.

There is nothing abstruse about the principles of repetition, if we but dismiss all ideas of arbitrary creation, and accept, as inevitable, that inner and sub-innre orbs or spherical nuclei, as also the nuclear organs of the consecutively more inter-repeated or complexed systems of circulation in animal forms, are all alike built up of essential substance, primarily indigenous to consecutively higher altitudes from the focus of infinite gravity, the prime movement of which substance is in *one* direction, toward the centre of its spherical form as a wholeness. Hence, the number of its inherited tendencies to move in *other* directions is in the ratio of its direct reflections from *inter-spherical centres*. The possibility of endless progress, in *forms of moving*, consists in the intrinsic ability of the essence of substance, in its essentially organic capacity, to move in an *infinite number of directions*, and in the intrinsic ability of the prime layers of form, parental to nature's formation, to repeat themselvcs within themselvcs *ad infinitum*. Hence our assumption that organic forms of substance are built up in the building-up of their vascular systems, includ-

ing their circulating media, by the influx of external essences, which, when the direction of their flow is reversed at the cell-centres of the incipient form, become staticized, *pro tempore*, as atomic forms, by the co-equal opposing force of like essences subsequently inflowing and ensphering them. By regarding this as the process by which the solar organism, with its successively developed vascular stratifications with their circulating planet-spheres, has become developed, it is possible to idealize our sphere as an individualized organism, flowing ever onward around the sun within its own boundaries of centripetal and centrifugal force.

From the self-evident fact that substance must be whatever it becomes, we know *positively* that the substance of our planet is an aggregation of the *essence* of substance; thence know by inference from analogy that *other* spherical nuclei are aggregations of essential substance: and, from knowing our planet to be atmosphered by substance in a counter-spacial condition, which renders it a *sphere* of gravity, we know from analogy that all the orbs in space are nuclear counterparts to corresponding atmospheres; thence know from analogy that, in their ultimate analysis, all spheres are constituted of nuclear and atmospheric spherules.

If substance, in its essentially organic capacity as a self-conditioned whole, is adapted to concentrate one-half of its ultimate comminutions as the directive soul or centrifugal force of its ultimate spherules, and the other half as their executive embodiments, why question its ability to individuate the directive soul or essential organism of every form it becomes?

It is the elemental germs, that constitute his organism on the embryonic plane of his species of structure,

those fruitful to his parent organisms *combined on the essential plane*, all of which grow up to maturity by means of their self-constructed systems of circulation, which are repetitions of those of the parental systems within which their functions were moulded, that become man's essential organism, the directive soul of its executive embodiments, its elemental ova, on its every plane of outgrowth. If, in its consecutively higher systems of circulation, the directive complexities of all the earth's ancestral spheres are repeated, then the wherefore of the innumerable capabilities and aspirations of its interforms are accounted for. As its culminate representative, man's aspirations include, not only the desired satiations or matings of all the germs of form inspired within his lower planes of existence in the *past*, but every nutrient germ he *now* inspires aspires to attain *seriatim* the heights and depths whence it has, and will have, descended and ascended *ad infinitum*.

12. The next, and an equally important, desideratum is to ascertain the actual agents, whose aggregate motive forces move the universe, *in moving the sum of its constituent organs or organisms*.

Even were it true in fact, and universally admitted, that the interspheres that make up the solar sphere are moved by the combined force of the sun's direct and reflex rays, or a combination of the earlier and later rays of the sun's sun, the wherefore that they move as they do, and not otherwise, is comprehensible only in so far as we are able to perceive the spacial and timal modifications to which their motive tendencies, as such, are continuously subjected. This perception must in turn include a perception of external counter-

forces, adequate to procreate and maintain internal reaction by like agents, so conditioned that their co-equal forceitiveness is in directions more or less diametrically opposite, on and on, more outward and more inward, *ad infinitum*.

If, like the vessels of the human organism, the elements constituting the earth's consecutively higher atmospheric strata are duplicated and re-duplicated by comminution, there is no increase of force between their greater individual number, acting as such, than the same number acting associatively as one individual. The number of directions in which the fluids of these vessels tend are the same. Their actual movement in an increasing number of directions, as the vessels increase in number surfaceward, simply expresses their *bearings* within the lessening number of vessels centreward. As the incipiency of the more external vessels necessarily precedes that of the more internal, it is readily seen that the motive tendencies of the lessening number are complexed by coalition, in the degree the increasing number increase in freedom to move by comminution. This clearly indicates that the different species of animals become incipient, in the order their modes of motion become increasingly complexed, from a corresponding decrease in the number of their distinct mechanical powers or distinct motions. The actions and re-actions of the circulating media involved, are necessarily in the directions which their prior mouldings determine. These mouldings are the elastic tendencies, resulting from the spacial and timal conditions of the essential substance, involved during its aggregation in specific forms.

Although all earthly forms are alike combinations of

solar and terrestrial rays, yet these rays are moulded into the same motive tendencies as the forms to which they become nutrient,—thenee ex-nutrient,—the sum of whieh is the common pabula of the earth-sphere's every eonstituent form. Their progress is, of neeessity, commensurate. That is, the surfaec cilia of the entire organism, external and internal, are protozoan in structure, whieh, in being protrusions from every branehlet or efferent capillary, and inversions within every rootlet or afferent capillary, mould the motive tendencies of the essential germs, outborn and inborn from and within the diffrent sections of its different vaseular systems, in whieh the strueture of all intervening forms are represented in their respcctive prototypal eonditions.

The fact that essential germs do grow up, through and from the vessels of the human organism, is fully proved by the growth of sueh as are not in aecord with the normal condition of its eonstituent germs. For example, embryo measles and other inhalable germs, which culminate as contagious diseases, require a definite period of time to pass through the arterial system from its pulmonary rootlets to the eutaneous branehlets.

The same is true as regards the growth of poisonous germs through the venous system. But such as are adapted to reproducee their embryo forms *ad libitum*, by transfcerrence from one system to another, are correspondingly more injurious as regards ability to transmit normal nutriment. There is, however, a definite limit to the reproduction of all species of malformation, whcne a return to speefic evolution is inevitable. We will now resume our investigation of the growth of sueh nutrient germs as have their struetural representatives within the human organism. Although, in its various

tissues, the constituent cells are combinations of solid, liquid, aerial, and super-aerial grades of substance, which as tissues are coalesced, comminuted, obliterated, prolated, elongated, flattened, and twisted into every needed shape, in order to effect movements in needed directions, yet, in virtue of the essentially spherical form of gravity, each cell of each acts and re-acts from the circumference and centre of its respective range of centripetal, centrifugal, and circular forceitiveness.

The assumption that each tissue, as also each cell, is adapted to select that and that only which is nutrient thereto, in the sense of adding strength to its existing motive tendencies,—the supply being normally adequate,—is fully licensed by the fact that this is just what our organs of special sense are continuously doing. The agents of taste and smell are ever responsive to the motivities of their nutrient counterparts, but blind and deaf to the nutrient germs to which the agents of sight and sound are responsive, *in being what these agents have become*. Hence, it is in keeping with this principle to assume that the structural representatives of the different kingdoms of external forms, within the human organism, reproduce like forms, which, in recognizing their prototypes in the objective universe, simply respond to what they are *per se*, as their respective intertypes within man's mental universe.

The generation of the basic germs of each specific structure, by the introversion of its super-basic germs, is clearly illustrated in the reproduction of all vegetable forms. The germ of each new tree, or new branch, or new leaf, is a nucleation of the germs within the sap of its predecessor, incased as a meroblastic ovum; their terminal cilia being the matrices whence their atmos-

pheric germs are outborn as ex-nutritment, and their terminal pores,—inverted eilia,—the matrices within which the atmospheric germs absorbed as super-basic nutritment are moulded. In their circulation to and from the roots and branches of their culminate forms, succeeding or later sap-corpuscles live upon the ex-nutritive germs of earlier or preceding sap-corpuscles.

The same is true of the corpuscles within the veins and arteries, and other afferent and efferent vessels of animal organisms, just as the earth's earlier species are the prey of later species. In virtue of this, each later species is a compound of the maturity and complexity of all preceding species.

The fact that slips from fruit-trees, when grafted upon other trees bearing different qualities of fruit, so mould the sap that enters their vessels that the fruit of each represents that of its parent tree, is irrefutable evidence that all differentiations in structure and function, or forms and modes of motion, result from differences in the *forms of moving*, to which the counter-germs involved are subjected during their development; and the fact that the natural and the grafted fruit gradually become nearer akin in quality, is evidence that the vascularity of the tree is in turn modified by re-absorbing their common basic fruitage, when combined with like super-basic germs received through their common leafage. This in turn is evidence that the gases, minerals, vegetables, and animals that constitute our world's stratial organism are mutually modified by subsisting upon their common fruital essences, combined with kindred germs inborn from external strata, subjacent and superjacent thereto. These external nutrient germs, which alone constitute the growth of our stratification, are the

sun's direct, or luminous, and reflex, or dark, rays, modified by transmission through every stratum of substance, below and above its altitude within the solar system.

Becoming, as they do, the atmospheric equivalents of every nascent elemental spherule within its every interform, each alike is necessarily progressing in the same ratio, notwithstanding man's contrary opinion. Not only is the intellectuality of all less complex species underrated, and their progress in mentality ignored, while the progress of our world as a whole, and of humanity as the culminating species, is a universal hobby, but their progress in *structure* is questioned. The progress of the human species to its present physical and metaphysical status of complexity and maturity, without a corresponding progress by all its commensal species of every kingdom, which is *per se* the progress of our world as their culmination, were as impossible as the growth of a human head from the anterior vertebræ of the ancient ichthyosaurus. Not until man perceives that physical progress is *per se* mental progress, or one and the same, will he begin to comprehend the first principles of *absolute* progress, which is purely the outgrowth of the soul or essential organism. This *real* selfhood is constituted of the representative image of every form in nature, the unknown as well as the consciously known, over which the conscious *ego* reigns by right of self-creation, reaping ever the most cultured fruits, whether of good or of evil, whether self-sown or sown by others.

When the public mind clearly perceives, as it most assuredly will sooner or later, that each man's universe of conceptive creations is *de facto* a substantial repetition in miniature of its objective prototype, recognized

by each as conscious knowledge; and that it is in the power of each to so cultivate his good traits, the milder and more peaceful animāls, that they become angels or agents of goodness, and to so transform or tame down his so-called evil traits, shrewd and cunning serpents, destructive beasts of prey, and the avaricious hoarders of unneeded food, that they become the most efficient servants by supplying the tact, the energy, and the economy lacking in the former,—it will simultaneously perceive that this policy should be carried out in the training of individual minds from individual infancy. There can be no extinct forms, for the reason that forms are *forms of moving, the expression of archetypal counter-forces, which are essentially self-existent in their self-conditioned completeness, as the soul and substance of time and space in their entirety.*

13. The germinal substance of a sphere, which, from lack of expansive resistance, is forced centredward by the pressure of like substance increasingly insistant above it, necessarily becomes nutritent, or additional to the expansiveness of such forms as are constituted of like substance, priorly brought into diametric opposition.

These prime germs, when organized as nuclear or centrifugal forms of force, increase and complicate their organs and functions, in virtue of the continuous forcing in, through their surface-pores, of like germs from every direction. And when, by an excess of local pressure on parts least resistant from need thereof, portions of the outer surface become inverted as internal organs, the procreative nuclei first formed become absorbed by their matrices, functionally female, as do the earlier and lesser-individuated male forms, or like the cotyledons of embryo plants. This death on lower planes, in order

to effect a resurrection on higher, is an inevitable necessity as regards fitness therefor. The necessary struggle for life by the plus-mature, but minus-eomplex, sex in lower species, is not only causative to the development of every needed organ of offence and defence, and of the needed ingenuity to exercise them, all of which have been transmitted to the males of consecutively more eomplex species, but the very weapons of defence against the stronger females in lower species are those by which the weaker females of higher species are *defended*. And the higher power of "moral suasion," forcibly developed in the human female by the tyranny of man, will as surely become a weapon of superior protection against the errors in human government, as that man is born of woman. Not only do the two sexes of the animal kingdom progress by a reciprocity of apparent evil doings, which, in higher species, culminate as mutual favors, but the same is true as regards the progress of different species. The valvular folds of the inner layer of the veins are prime weapons of defence against its own substance, against loss of power by a reflux of their contents, which defence is the means by which a needed supply of plus-condensed germs enter the arterial system, which, in turn, ultimatelyes in a due supply of minus-eondensed germs for the nourishment of the venous system.

The eentward flow of these germs, which develop by exchanging their rarer essences for those fruital to the more and more complex structural representatives of the earth's eonsecutively later forms, is, like the foldings that prevent their reflux, the result of over-distension, and a corresponding lack of re-action against the pressure of the atmosphere. It is, *per se*, their

need of more complex directions and greater resistance, that forces them into a lower plane of being; in a word, that forces them into, and returns them from, every cell of the organism, thence causes their secretion, within its organs of specific generation, as its pre-specific germs, their basic counterparts being fruital to the forms within the alimentary canal, the organism's representative earth or under-world. This, we assume, is a repetition of the concentration of the elemental germs, fruital to the forms that make up the earth-sphere's consecutively higher atmospheric stratifications (present, past, and prior-past existences as regards *our now*, but present, first-future, and second-future states as regards our existence therein), as the super-bases of like germs, simultaneously ascending to our present plane of life from the earth's sub-stratifications. Viewed in this light, essential substance, in being the constituent and the nutrient force of all species of forms of both sexes on every plane of maturity, *is every function of each*, hence is the omniscience manifest as the motive power of infinite gravity, being everywhere present as the *eternal now* of endless life.

And if man could but lay aside his preconceived ideas that the fitness of things is proof of their arbitrary creation, and study the law of *necessity* by which each need is supplied by a counter-need, than which there can be no higher wisdom, he would perceive perforce, of his own experience, that all wisdom is born of necessity. The structure and functions of each organ are truthful expressions of the needs that conditioned its becoming existent, *when and where needed*. The same is true as regards the structure and functions of each organism, which are but organs of a more-embracing

organism. To know what is needed at all times and in all places, the Supreme Architect must be the needee as well as the supplier. And this is just what the essence of Infinite Being eternally is. And it certainly cannot detract from the dignity of man, that the specific structures of the infinite organism are repeated within his.

14. But in all the homologies and analogies of nature, or similarity in structure and function between different species of animals,—which we assume are increasingly complexed in the order of their advent by the repetition *seriatim* of the organs of the earlier within the later, consequent upon their culminate outgrowth as the outgrowth of the strata and spheres to which they are constituent,—we find no license for the assumption that the human, or any other species, has been “specifically” developed from a lower species. Although inseparably interlinked as the consecutively more complex organs of a common organism, yet each must have become existent, as such, at the place where, and at the time when, its functions express the need that conditioned its addition to those priorly in operation. When the limbs of a quadruped sprout from the sides of its body, they are built up of the germs fruital to the elements of the entire organism, though the agency of branch-systems of circulation which are extroversions from the introverted parent systems, and not by the essential representatives of the ventral cilia that serve as organs of locomotion in lower species, or by those representing like organs in any intermediate species. That a less-complex organ can become differentiated or transformed into one more complex, other than by a re-organization of the ultimate constituents involved in its primal formation, is impos-

sible from the fact that all elements nutrient to an organism, all of which are priorly counter-conditioned elemental germs external thereto, are *re-moulded* into its specific likeness by transmission through the counter-sexual layers of its embryonic membrane, which are constituted of the specific elemental germs of its parent forms, combined as their specific structure *in embryo*. And as all its currental systems, with their respective counter-sexual elements and inter-forms, are developed between, and receive their nutrient germs through the agency of, the spinal and sympathetic nerves, all are *specifically moulded* prior to their combination as its constituent elements. The transformation of a tadpole into a frog is effected by atomic transference, through the agency of its own currental systems. The same is true of all pupal transformations.

This atomic transference is clearly illustrated in the development of permanent teeth. When the milk-teeth remain until the former are partially grown, as is the case with many children, the latter are partially absorbed, because directly superjacent to the absorbents through which the permanent teeth assimilate their super-basic nutriment when the milk-teeth are not present. The principles of specific mouldings are necessarily essential, inasmuch as they not only determine the functional proclivities of every species of form, but are the bases of their *individuation*, as forms of force *contradistinctly motile*.

15. The thoracic cavity in the human organism is as distinct from the abdominal cavity, as are the atmospheric strata of the earth-sphere from its nuclear strata. And the forms within the thoracic duct are no more fitted to rise above the diaphragm, and enter the san-

guiferous system, without corresponding transformations, which are effected by the transferrence of the substance needed therefor *from* the thoracic cavity, than are tadpoles fitted to enter the aerial stratum. Inasmuch as all differentiations in form and function are effected within the spaciality of each organism, it is readily seen that by no possible atomic transposition within its organism could the elements of a gorilla become those of a man. As the culmination of all others, the human form must have been specifically distinct from its incipiency. And although gestated commensally with, and organically related to, all others, its progress being the sum of theirs, yet all its differentiations must have been within itself.

That changes in either the nuclear or atmospheric nutriment of an animal, by change in climate or locality, produces changes in its sentient or essential qualities, is fully established. The eye may be so nurtured by an excess of light that its range of vision is greatly increased; while, from the entire absence of light, fishes within the Mammoth Cave have no eyes. This is self-evidence that the eye is constituted of luminous substance variously condensed, as the lenses, reflectors, and other appurtenances needed; and that its afferent and efferent vessels are adapted to transmit the equal quantities of light and darkness which its normal development requires.

When necessary, the neutrals, or workers, of a swarm of bees develop a new mother or queen bee from a common egg in a common cell, by so changing the form and size of the cell, and the time of supplying its food, that it *conditions* the development of the true female of the species. True males or drones are developed from like

ova, by so changing their spacial conditions that the times between the actions and re-actions, or pulsations of their nutrient and ex-nutrient germs, within their respective vessels, and the *intervals* between the meals dealt out to the embryos, are so extended that less motile or male organisms are the result.

The smaller and perfectly symmetrical cells of the neutrals condition greater activity, but admit of no variation in structure or function; hence they are non-sexual.

While these facts prove conclusively that differences in structure and function, even difference in sex, are the result of the spacial and timal conditions of the essential substance involved, they all occur within specific limits,—the limital range of the mechanical powers of each species. The fact that each species is a specific combination of mechanical powers, utterly precludes the possibility of any one species becoming other than the same combination, inasmuch as each power increases in force equally and simultaneously, regardless of its maturity or complexity. And yet the evolution of higher species from lower is fundamentally true, in the sense that their more complex organisms are the result of increase in the number of the direct movements of the earth-sphere's internal organs,—theirs as a whole, in virtue of the repetition and re-repetition of those which condition movements in a lesser number of directions. The ability of the terrestrial organism to generate more and more complex internal organs is necessarily commensurate with their needed efficiency, which conditioned their aggregation within the vacuos where their re-active proclivities supplied the need. If this be indeed the "origin of spe-

cies," then "the descent of man" from lower species is true in fact, inasmuch as his traits or structural propclivities are inherited from his past and present commensals; the specific characteristics of each being those which each inherits from his ancestors, proximate and ante-proximate, back to his *specific origin*.

CHAPTER X.

1. By accepting the organization of specific forms of substance as the aggregation of its essence, which, as such, is intrinsically elastic and responsive, hence organizable, thence accept all prior modifications of its elasticity or vitality, by the forms to which it has been nutrient and ex-nutrient, as the inherited motive tendencies of the specific soul-germs of each, we at once perceive that these soul-germs are utterly distinct from the external germs, that, in becoming subjected as nutriment, become their executive embodiments or mechanical agents, which essential agents culminate as the body of the specific *form* on its successive planes of maturation. Not only so, but we idealize the assumption that the priorly inherited tendencies, by means of which these counter-elastic germs are brought into essential opposition between the prime layers of its prime membrane, and forced to move in mediate directions, become the directive soul or currental tendencies of its different systems of circulation. The mouldings of essential substance within counter-sexual organisms, which become the inherent tendencies of their common offspring, being solely in virtue of the subjection of their fruital germs to opposite spacial condition during equal periods of time, sex, regarded as two forms of forc-

tiveness, maternal, or ex-centre-tending, and paternal, or centre-tending, is necessarily correlative, and essentially interchangeable.

It is identical with, or rather is, *per se*, the functions of life on the essential plane, in being the progressive reciprocity of *conditions* between basic and super-basic essences, assimilated as nuclear and atmospheric nutriment. That which is being inborn is male as regards the recipient form, but female as regards the form whence it is outborn. Whether as essence, or ova, or as forms more or less organized, the substance parturiated is the ex-nutritive or ripened germs, fruital to the elemental spherules of the form within which they are gestated.

And, unless so regarded, we cannot perceive the principles involved in the genesis of form, either as objective realities, or as subjective idealities, conceptive creations of the outer universe within and as the mind's inner universe. The functions of the two sexes of a specific structure are correlated solely in the sense that each sex so moulds its counter-sexual germs, that, when combined and ripened as pre-specific or protozoan forms, the latter's germs are combinable as the elemental germs of the outer species on its embryonic plane. This is effected by the deposition of the fertile ovum of the female protozoan fruital to the outer male progenitor within that of the female protozoan fruital to the outer female progenitor, around which, for its prime nutrition, the latter's specific clemental germs are nucleated as her holoblastic or microblastic ovum.

For example, the substance centring within the earth-sphere from external space, of which its every constituent form is built up, is *pro-creative*, or male;

while that which is becoming ex-eentrated from these forms into external space is *re-creative*, or female, as regards their individuality and that of the earth-sphere. But the terrestrial germs centring within the spheres of Venus and Mars are to those spheres pro-creative, or male, during their introversion, being *re-creative*, or female, during their extroversion; while, as regards solar gravity, the germinal substance ascending from lower altitudes is female, and that descending from higher altitudes is male.

The counter-necessities involved in these correlations is self-evidence of their omnipresence. This is the ground of our assumption that the essentially dynamic or vital agents within the correlated strata that make up our world, and on the same principle those indigenous to the counterpart systems within our organisms, *their* worlds, are constituted of like elements in like proportions, but counter-clastic. Hence they are rhythmically plus and minus motile individually, each moving toward their respective points of local attraction and nutrition, from opposite directions, with equal momentum. For example, the soul-germs of the counter-tending vital agents, within the spinal and sympathetic nerves, at their somatic death become re-embodied within the lymphatics; while their bodily germs, their ova, or embryonic representatives, equally male and female, become their neural successors. At their somatic death the soul-germs of the aquaceous agents, within the counter-tending lymphatics, become re-embodied within the sanguiferous system; while their bodily germs *in ovo*, male and female, combine as their common offspring, their lymphatic successors. At their somatic death the soul-germs of the air-breathing agents, within the veins and

arterics and inter-bronchial air-vessels, become re-embodied within the cephalic system ; while their bodily germs, their male and female representatives on their embryonic plane, combine as their sanguiferous and inter-bronchial successors. As a compound of the plus maturity of all the systems preceding it, the nervous and lymphatic, and the plus complexity of the bronchial and cephalic systems succeeding it, the sanguiferous system not only returns quantitative equivalents of essential germs to these internal counterpart systems, but the organism, through its agency, returns quantitative equivalents of its essential representatives to the external strata whence they were primarily assimilated. Not only so, but quantitative equivalents of these counter-sexual sanguiferous germs concentrate within the organism's counter-sexual organs of specific generation, which, during its puberty, combine and develop therein as its pre-specific or protozoan offspring ; while like, but super-mature, germs, concentrate within the sensorium as the representatives of the organism's essential qualities, those priorly abstracted, by the organs of general and special sense, as nutriment from its commensal forms.

In virtue of their plus condensation, these representatives of the outer universe within the brain are the female or immature counterparts of like, but plus mobile, essences of outer forms, which subsequently become inborn through the organs of sense. These representatives of the essential qualities of the inner and outer universe, when combined as their concrete qualities, are sentient media essentially ubiquitous within both, in virtue of being specific *miniatures* of outer forms.

As these sexual relations pertain solely to, and inherere in, the *ultimate germs of form* in virtue of counter-spacial conditions, which, in coming into combination from opposing directions as the bases and super-bases of the elements of form, regardless of the sex of the specific structures they become, determine their specific functions, including that of reproduction, they deserve especial attention.

2. We present, as license for our assumption that every spherule has its counterpart systems of circulation, or nuclear and atmospheric counter-currents of empyreal fluids, the fact that every aqueous vapor has its nucleus and its atmosphere. In fog, their nuclei appear as points of light at definite distances from each other, like the dark points or nuclear germs in the spawn of frogs. During night these vapors, which pervade the entire atmosphere in an invisible state, descend, because of their decrease in expansibility, eight thousand miles more distant from the focus of solar gravity than during their ascent. When these nuclei collect as dewdrops on the tips of pendent leaves, it is the centripetal force of their combined invisible atmospheres, pressing on all sides of their common nucleus, that maintains their globular form ; their counter-currents, and their nuclear and atmospheric or counter-tending rays, being miniature repetitions of those that maintain the globular form of the earth's ocean waters within their tidal limits. And in like manner as the negative empyreal fluids of the earth, and the positive empyreal fluids of its atmosphere, tend toward each other through the agency of its aqueous elements, so each dewdrop is held in *statu quo* by the inter-coherence of its atmospheric rays of like fluids, and those out-tending from the leaf.

The silent mission of these descending vapors is to impregnate the earth with the empyreal germs matured within its atmosphere; their descent, and the subsequent ascent of like germs matured on its surface, being due to their subjection to the greater and lesser spaciality of the earth's anti-sunward and sunward hemispheres during equal periods of time, during which their specific gravity becomes reversed, progressively on and on. That is, the super-bases of ascending germs become the bases of like germs at higher altitudes, while their bases descend as the super-bases of like germs at lower altitudes; each vapor performing its currental rounds, in virtue of a repetition of the earthsphere's system of currents within its gravital limits.

When the skeletons of dewdrops descend as snow-crystals, the form of each is that of the cristalets, the skeletons of the vapors, involved in its constitution. This is conclusive evidence that the currents of the latter culminate as those of the former; otherwise they could not *be* or *become* the same in structure, the greater being repeated within the lesser with mechanical exactness. The currental forces of its parent spheres, being inherent in the counter-tending rays that combine as the constituent spherules of the earthsphere, they are necessarily inherent and efficient in its aqueous vapors, which are compounds of oxygenic and hydrogenic spherules.

In virtue of this, every dewdrop has its perpendicular counter-tending rays, and its bilateral counter-currents, its nuclear equator, and its poles. Not only so, but like rays and like currents are continuously efficient in every spherule of its atmosphere, which, as a whole, has its equators of limitation between the ex-

treme ranges of boreal and austral magnetism, at the poles of which the force of each is focalized. And it is the repetition of its bilateral counter-currents as a whole, within the spherules that constitute the earth's atmosphere, that causes them to flow in these mediate directions, *as its circulating media*. When these visible dewdrops, which are as truly organized as the earth's surface-forms, and whose empyreal fluids become the bases of their elemental force, become invisible from expansion, they are by no means de-organized. The structure of their nuclear organisms, when congealed as snow-crystals, is positive proof that the dynamic fluids, by whose counter-tending motive powers they were moved and are still cohered, are *organic forms of force*; every tendency of which is inherent in the spherular skeletons of the culminate crystals. This, because the crystalets, or ex-vapors, that constitute each ex-dewdrop, are known to be definite proportions of oxygen and hydrogen, cohered as compound spherules, through the agency of their opposite electric and magnetic qualities. Hence, we are prepared to find the austral and boreal poles, and positive and negative meridians of these crystalets, in apparent contact. These phenomena license the assumption that the positional arrangement of the empyreal germs *in ovo*, staticized as its vascularity, is *per se* the *form* of each nuclear or objective organism; while the counter-tending empyreal fluids, that permeate and nourish each and all, are *per se* its essentially vital organism.

3. As the electric and magnetic relations of elements differ at different altitudes and latitudes, the functions of the forms they constitute are necessarily subject to like modifications.

While the earthward meridian hemisphere of each spherule is negative and its anti-earthward hemisphere is positive, its austral and boreal hemispheres are as wholes alternately negative and positive, from plus and minus condensation at higher and lower latitudes in continuous alternation in equal periods of time. The same is true as regards the nuclear and atmospheric spherules of every objective form. The electric qualities of its constituent spherules increase, and their magnetic qualities decrease, inversely as the square of distance from the earth's centre; while those on either side of its equator decrease in electric force, and increase in magnetic force, in the ratio of increase in distance poleward therefrom. In accordance with these functional tendencies, we recognize the more interior or denser elements of a form as negative or female, and its more exterior or rarer elements as positive or male.

Not only is the central or basic element of every compound spherule negative, and its super-basic element positive, as a whole, like the earth and its atmosphere, but, like those of the earth, its polar elements are negative to its equatorial elements. This, because the polar elements are on the axial plane, hence are equally condensed as those at its centre as regards solar gravity. The *spacial* condition of magneto-electric spherules is the reverse of the spacial condition of electro-magnetic spherules; while the *timal* condition of thermo-luminous spherules, the dynamic representatives of the latter, are the reverse of the timal condition of luminous-thermal spherules, or atoms heated to luminosity, the dynamic representatives of the former.

That these different qualities, or "modes of motion,"

are the result of the spacial and timal conditions of the same essential substance, is readily demonstrated. And it is of vital importance, as regards a comprehension of the principles involved, that this should be clearly illustrated. The different degrees of magneto-electric force, and also that of electro-magnetism, from the faintest pulselet to the production of heat and light, are all expressed in the operation of a common battery, and, in lesser degrees of force, in the currents of a horseshoe magnet. But the best exponents are the earth's upper and lower, or poleward and equatorward, air-currents, which are the effect of like currents of empyreal fluids, caused by the subjection of the substance of its sunward and anti-sunward hemispheres to opposite spacial conditions, during equal periods of time in continuous alternation. The upper or poleward currents are electro-magnetic, in the sense that they are the earth's rays or lines of thermo-luminous spherules converging towards the extreme of condensation, during which their *spacial condition* becomes reversed; the luminous atoms becoming central, and the thermal atoms super-central. On their return as lower or equatorward currents, they are magneto-electric in the sense that the whilom luminous atoms are the central nuclei, and the whilom thermal atoms are the super-central or atmospherie nuclei, of the spherules involved, during which *their former spacial conditions are becoming gradually restored.* Sensible heat and light is the *excess* of expansive force in magneto-electric atoms; while latent heat and light is the *excess* of condensive force in electro-magnetic atoms. The distance to and from the poles being equal to the earth's equatorial circumference, the poleward night-currents become the equatorward day.

currents, and the poleward day-currents become the equatorward night-currents.

This continuous reversion of the elastic tendency of equal quantities of essential substance under opposite spacial conditions is *superinduced*, in the sense that each is alternately impelled to move across the line of mediate density, by equal degrees of super-pressure, *in opposition to their own intrinsic tendency toward equilibrium*. This unchangeable tendency toward equilibrium when latent as form, which is actualized as movement in that direction when free to express its intrinsic elasticity, is *per se the vital functions of essential substance*. And the wherefore that the vital essences of each more interior or lower stratum of a sphere is forced to oscillate across its equator or line of equilibrium by the pressure of superjacent strata, is because of their multiplication by communion equatorward from the *axial poles* of its ensphering spheres, in the ratio of increase in space from the *centre* of a sphere. In consequence of this "diffusion," the empyreal essences vital to the more and more mobile elements, compounds, and complex forms, indigenous to consecutively higher and more spacial strata, decrease their stratial or associate rotivity, and increase the individual rotivity of their spherular nuclei, *in this ratio*.

The increasing extensions of time between the alternations of perihelion and aphelion, or plus and minus condensation of the substance constituting the consecutively higher stratifications of the solar sphere, to which its primary inter-spheres are indigenous, is ample proof that these principles are universally effective, hence are repeated within its every inter-sphere, and within every spherule of each.

As is readily seen, the *increase in time* between the alternations of plus and minus pressure by the consecutively more spaeial stratifieations upon their intrinsieally vital essenees, by means of which they are forced above and below and bilateral to their planes of mediate density, is the exact counter-equivalent of the *decrease in time* between the re-active efforts of the latter toward equilibrium. As the conseutively more rapid oseillations of their vital essenees are different octaves of vital harmony, those of each higher stratification being the square of those within eah lower, endlessly outward from the centre of infinite spaee, we perceive that the substance involved is *timally self-conditioned*, hence is *self-moving* in virtue of its intrinsie elasticity. This, because its motions, the measures of time, pertain to the substance of things, not to the form of the areas of space that determine their speefie struetures. These principles, which are everywhere expressed in the phenomena of nature with more or less clearness, according to the standpoint from which they are viewed, are the bases of our assumption that essential substance, as a wholeness, in beoming every dynamic form of force in virtue of its modifieations by the spherieal form of static gravity or spaee, inherits every mode of motion which its counterpart of static force conditions. If otherwise, it could not have become, or be, the expression of every form of moving recognized as the struetural proelivities of the infinitude of living, self-sentient entities that make up our strata of subsistence, — our world ; all of which expressions are in virtue of the equal and opposite actions and re-actions between the one eentral axis and two polar axes of the earth, and the two central and two bipolar axes of its atmosphere.

They are also our license for assuming that the electro-magnetic fluids, whose inereasing pulsations are manifest, on the surface of all forms, as increasing degrees of heat up to luminosity, under inereasing friction and rarefaction, are the bases of life ; its external expression being effected through their motivities as heat, light, sound, odor, and sapidity.

4. We are now prepared to present our ideas regarding the chemical changes effected through the agency of electricity and magnetism. In the first placee, it must be borne in mind that the ordinary pulsations of these fluids on the surface of magnets, or on substances said to be "charged," are intermediate between their oscillate rotations, across the line of mediate density, as heat and light, and their motive tendencies when latent as form.

That substancies charged with these fluids are partially vitalized, has been fully demonstrated by their effect upon organisms immediately subsequent to somatic death. If introduced with alternations of plus and minus force, their struetural proclivities are expressed with astonishing accuracy. Two things are especially apparent :—

1st, That the *fluids introduced* are akin to those that priorly *vitalized them*.

2d, That the *twitchings* of the various tissues are akin to the *breakings* of the currents, at the poles of the magnet in the battery used. These twitchings disclose the actions and re-actions of the tissues ; showing conclusively that these fluids, during their progress, are expanded from the hither pole of each bundle of musele-fibres to its central swell, or belly, thence are condensed therefrom to the thither pole, thence are expanded

from the hither pole of the next bundle to *its* swell, thence are condensed at its thither pole: thus on through the entire organism.

As their flow in each is effected by the co-equal action and re-action of the opposing polar and opposing meridian hemisphere of their ultimate cells, which force them alternately across their planes of equal density, they necessarily constitute direct and reflex currents of equal force in every cell and in every fibre of the organism. But this artificial life can only be kept up during the lingering of the ultimate sparks of vital heat prior to the "rigor of death," their final spasmotic outbirth. Thenceforth the organism is simply a conductor. Although no longer adapted to contract and expand rhythmically as during the propulsion of their vital fluids, yet the directions of the currents along separate nerves and muscles reveal their structural tendencies, by their movement toward and from their cut ends in a continuous round.

5. The upward and downward flow of sap within the tubular sections of plants between their points of attachment, or joints, is identical in principle, and is conclusive evidence that its flow is effected by the counter-part pulsations of the inter-cells constituting the sections, the direct ascending current in each being reflected, by contact and exchange of essences with the reflex or descending current within the next higher section, at these points of equilibrium, on and on. In recognizing these successive super-bases as the elastic limits of the substance of each section, we perceive that the principles involved in these counter-currents are of necessity universally operative, in the growth of form in every direction from a common centre. If so, corresponding

counter-currents are necessarily present, in the disintegration of metallic and other substances by electromagnetism.

That afferent and efferent currents are effective in the chemical synthesis or growth of organic forms, and also in the chemical analysis of their needed nutrient, prior to the development of their vessels, is unquestioned. Hence, our assumption that there are direct and reverse currents passing along the two wires from the disintegrating metals within the battery, is fully licensed; and also the assumption that these reversions occur at distances proportional to the thickness of the wires. That these "nodal" sections are proportional to the thickness of the wire, can be readily shown by placing paper sprinkled with iron filings above magnetized wires of different thickness. If placed above the poles of a magnet, the direct central lines, and the more and more outward curved lines, in which the filings arrange themselves, are in accordance not only with our ideal of the earth's magnetic surface-currents, but the latter clearly represent the general direction of its lower air-currents.

And nothing so clearly illustrates our ideal of the contractions and expansions in the conducting vessels of an organism, by means of which their fluids are propelled, as do the equatorial and polar reversions of the earth's air-currents. The connecting sections of these vessels are all alike culminating cells, built up of consecutively lesser cells, varied in structure as their needed functions demand. Hence, the reversions of the latter's poleward and equatorward currents are rhythmically proportional to those of the former. In virtue of this, the expansion of their conjoined meridian hemispheres

alternate with the contractions of their polar hemispheres; so that, while their contents are forced continuously onward in one direction, the equatorial currents of electricity on the surfaces of each section are reversed at their points of conjunction, thence flow as negative currents, like those following in the sun's wake on the earth's surface, counter to its direct advance.

It is purely the combined actions and re-actions of the earth's atmospheric counter-currents, under their alternations of plus and minus super-pressure, that propel the earth's tidal waves onward around its centre in opposite directions. The same principles are involved in the propulsion of the earth-sphere and its needed pabula, during its direct and reverse circulation to and from its aphelion within the solar organism. The pulsations of the latter are all rhythmically correlated with the vital pulses within our organisms. The fact that action and re-action are equal and opposite, is self-evidence of the presence and equality of the direct and reverse movements of that which acts and reacts under every possible condition.

The process by which electro-magnetism is evolved, by the disintegration of the substances used in a common battery, is identical with that by which it is continuously being evolved by the decombination of earthy, aqueous, aerial, and empyreal compounds, by the combination of the earth's and sun's negative or luminous rays and positive or dark rays within them, thereby forcing out or liberating the latent empyreal spherulcs, interstitial to their elemental nuclei. These empyreal elements, whieh are luminous within the earth's sunward hemisphere, and non-luminous within its opposite hemisphere, ultimate as electro-magnetic

poleward eurrents. And this is just what they are at the poles of the magnet in the electro-magnetic battery; the sparks, emitted at the breakings between the two positive and the two negative eurrents, being the glintings of their diverging thermal atoms, when suddenly forced back, by atmospheric pressure, while combining with like fluids forced from the decombinining compounds, between and surrounding these points of reversion.

These eurrents not only express the minus and plus condensiveness of the electric fluids, forced from the denser and rarer compounds during their disintegration within the battery, but also the plus and minus expansiveness of their magnetic fluids at the poles of the magnet,—their points of extreme eondensation as latent light.

It must be borne in mind that these eurrents, as wholes, are the sum of the eurrents passing directly and reflexly from the “nodes,” between the consecutive seetions of the magnetized wires leading from the battery. And also bear in mind that the direct or positive inter-eurrent of each culminate eurrent, which becomes the negative inter-eurrent at each more poleward node, is continuous as one circular eurrent, *in virtue of a mutual exchange of their counter-spacial fluids by adjoining sections.* That is, the fluids forced from the positive or centre-tending eurrents of the circulating system in each section, on entering the next seetion force from its rotary eurrent into that of the next seetion an equal quantity; thus on and on, while each communieating eurrent receives in return an equivalent of fluids from the negative or ex-centre-tending eurrents.

This progress of foree, by what is termed “substitu-

tion," is clearly illustrated in the common experiment with a series of ivory balls. The reflex force of the falling ball is forced back into it, simultaneous with the transmission of its direct force to the third stationary ball, which force is the transmission of the fluids displaced in each to the next; thus on through the series, the time involved in the transmission of the initiatory force being proportional to the quantity and elasticity of the balls. The lesser the distance between the breaks the more rapid its transmission, whatever the momentum. As the flow of electricity in the sun's wake winds spirally around the earth eastward, tending poleward from the equator in both polar hemispheres, the wires on the north and south poles of the magnet of a battery are most natural and most efficient, if wound in these opposite directions. Then, if the conducting wires correspond with them in length and thickness, the force of the counter-currents at their poles will equal that at the break between the positive and negative poles of the magnet, when brought into equal proximity.

The positive and negative electricity, set free by the decombination of the rarer and denser elements at these breaks, are respectively added to the negative and positive currents circulating along these wires in opposite directions; while the more explosive fluids escape as heat and light.

6. Now, taking it as granted that difference in spaciality is the wherefore of the combinability of elements minus and plus in specific gravity, there still remains unanswered the question, Why are these elements continuously becoming combined, decombined, and recombined? Or, in other words, Whence the counter-attractions that alternately force them together, thence

draw them apart in such a manner that elements of mediate disparity in density and mutual attraction combine between them in more or less complex forms, or separate them *in toto* as at somatic death. In our ideal of the phenomena, the absolute counter-attractions involved are the counter-tending rays of essential substance, primarily tending from the periphery of universal formation toward its centre, thence those tending from the prime centre in combination with later rays tending thereto. These in becoming individuated as inner and sub-inner spheres, made up of spherules of ever-lessening disparity in density, tend centward from the periphery of each, by which means their centrifugal and centripetal rays of essential substance combine at every point within their respective spacialities. Even though we may never have the faintest conception of the prime initiatory impulse, yet the *fact* that our sphere and its associate planet-spheres do actually move alternately through the more, thence through the less, spacial hemisphere of the solar sphere during equal periods of time, is self-evidence that the substance of these opposite meridian hemispheres is continuously in opposite spacial conditions. As the time between the alternations in the spacial conditions of each planet-sphere is inversely as the square of distance from the sun, the same is necessarily true as regards the alternate minus and plus spacial conditions of the different stratifications of the planet-spheres.

In virtue of this *known* law, the expansibility or "tension" of the earth's empyreal fluids, which determines the specific gravity of the elements they permeate and vitalize, is inversely as the square of distance from its centre; while their condensability or *distension*

increases conversely in the same ratio. If, as assumed, the perihelion, or less spacial hemisphere or half of the solar organism, is always toward its sun; and its aphelion, or more spacial hemisphere, is always outermost therefrom, then the rays of the *extra* solar sun fall upon the solar atmosphere, just as the *intra* solar sun's rays fall upon the earth's atmosphere.

That is, the plus expansive force of the former's direct or negative rays is continuously correlated with the plus expansive force of the latter's direct or negative rays, just as the direct or negative force of its sun is always upon the earth-sphere's negative, or minus spacial, hemisphere; the positive or reflex force, in the case of both, being on the positive, or plus spacial, hemisphere. But we must bear in mind that the reflex rays of each sphere were priorly radiated from the nucleus of the sphere within which it subsists, refracted from its periphery, regardless of their periodic coincidence, hence are paternal or positive as regards its sub-inner spheres, while maternal as regards its prime inner spheres.

These distinctions are of the first importance, as regards understanding the genesis of form step by step downward and upward: the paternal function being the convergence or nucleation of essential substance, from its "diffused" condition as elemental germs fruital to compounds and complex forms; the maternal function being the outgrowth of these embryo elements, up to the mature or paternal plane, by the combination of like germs fruital to counter-sexual elements of ever-lessening spacial disparity, *between* the nucleus and the atmosphere of each. The downward step into pre-natal darkness is indispensable to the upward step, or out-growth into post-natal light. These cycles are the con-

secutive rounds of life's ladder, by means of which forms are continuously ascending toward the "primordial" altitudes of their essential substance. Its nucleation on the embryonic plane is purely conditional; each germ being priorly a ray of more mature light enwombed in darkness, provisional to its greater complexity on the mature plane. Hence its ability to sense what it is.

The presence of the dark lines in the solar spectrum is readily accounted for, when we take into account that the nuclei of the empyreal spherules that constitute the earth's luminous rays, termed "sunlight," have their illuminated and their darkened hemispheres; their conditions being reversed, in like manner as are those of the earth's opposing meridian hemispheres, with a frequency proportional to their lesser quantity, modified by their freedom to move.

And when we take into account that light cannot be re-reflected in the direction of the prime incidental rays, for the reason that two rays of equal quantity, and velocity diametrically opposed, counterpoise each other's momentum, we perceive, that, while the direct rays of the earth's paternal sun are directly reflected from its maternal sun upon the sunward hemisphere of its atmosphere, thence concentrated upon its surface, they become diametrically opposed to the re-reflected rays of the paternal sun, simultaneously concentrating within the earth's anti-sunward hemisphere.

The wherefore that the paternal or positive rays are non-luminous within the earth's plus spacial hemisphere, is because they are diametrically opposed by the earth's positive rays, rays tending outward toward incipiency on a, to us, super-sensuous plane of expres-

sion. Although the sun's direct rays are negative as regards the solar sphere as a whole, compared with those of *its* maternal or proximate sun, yet, when converging within the atmospheres of its planets or inter-suns, they are positive compared with the rays diverging from the latter, which, being equal in density, meet them with equal force at every point. As the spark at the positive pole of a magnet is pointed, while that at the negative pole is spherical, evidently the sun's direct rays, converging within the earth's atmosphere, are correspondingly acute, hence pierce the latter's diverging or obtuse rays, thereby cause the explosion of their spherules; the friction of their rapidly rotating nuclei, and the glintings of their super-nuclei when forced back toward the sunules by super-pressure, being the heat and light evolved.

By regarding the dark lines of the solar spectrum as the re-reflected rays from a more mature sphere, converging toward the embryo plane of a more complex sphere, and the luminous lines as the return of their predecessors toward the consecutively more mature spheres through which they descended as essential germs, we not only obtain a clew to their reciprocity as counter-nutrient forces, but to the phenomena of polarized light, and the contradistinct functions of counter-tending currents in every species of fluid compounds. These same counter-tending empyreal fluids are as effective in the genesis of the germinal membrane of an embryo animal, as they are in contracting and expanding the various afferent and efferent vessels of its mature organism.

The four grades of substance involved in its construction, being the essences of the solid, liquid, aeriform, and

super-aeriform elements of its strata of subsistence, are the same as substance, and inherit the same tendencies, when thus constructed, as prior thereto.

The empyreal fluids of these strata, extremely condensed and extremely expanded, are represented in its osseous skeleton and in its nervo-vital fluids, while those of intermediate mobility are represented in its meditately condensed tissues, stratiatly positioned between the former, whose motile qualities are assumed to represent respectively the extreme expansibility and condensability of the *extra* solar sun's rays, and the intermediate expansibility of the *intra* solar sun's rays. The intermediate motility of the aerial fluids plus condensed within the pulmonary air-cells, and those minus condensed within the cutaneous air-cells, are respectively represented in the different degrees of motility imparted to the blood by each; that of venous blood being bluish, a more motile color, that of arterial blood being red, a less motile color.

7. As the basic nutriment of all organic forms is assimilated in a liquid state, the earth's surface must have been covered with water prior to its incrustation, by the development of solid elements as the external skeletons of its crustaceous animals. Geological discoveries indicate the existence of marine animals ages prior to the advent of land animals; all traces of such as are now represented by soft bodies being annihilated, except as present types represent the earth's earlier conditions, and different modes of serpentine and vermicular locomotion, prior to its axial rotation. In the lower forms of the class annelida,—feetless worms,—the segmentary divisions are obscure, owing to the general softness of the integuments. Their serpentine

locomotion represents the orbital progress of the earth, in its alternations north and south of the equinoctial, during its associative orbito-axial revolution with the sun. That is, the sun's passage to its highest latitudes north and south of the equator of its sphere of subsistence, which was effected by its axial motive force, whether or not sufficiently free to rotate individually, was transmitted to, and became inherent in, the substance of the earth and its atmosphere, all of which motive tendencies were transmitted to its cotemporary animals, its functions being the functions of its animate forms. The segmentation of the body in the higher class myriapoda is very distinct, the segments being hardened and insulated by flexible membranes.

We recognize their vermicular, or wave-like, locomotion, which is effected by the alternate contractions and expansions of their segments in reverse perpendicular directions; those of the segments of serpents being in reverse horizontal directions, as being procreated by the waves produced in the solar atmosphere by the sun's orbito-axial revolution at higher and freer altitudes within its proximate sphere of subsistence. The impress of these waves of force, which are now continuously transmitted to, and reflected from, the periphery of the solar sphere, and which become inherent in the substance of its direct and reflex rays that combine as its inter-spheres, was of necessity increasingly distinct, in the ratio of the continuous increase in disparity between the density of its co-equivalents of nuclear and atmospheric substance, and the increased axial rotation of its nuclei spherical and spherular, and the decreased rotation of its atmospheric stratifications in the ratio of its increase in spaciality, which also

permitted its gradual erection from its prime horizontal position.

Assuming as self-evident, that these waves of force, in their inter-solar projections and reflections, were repeated and inter-repeated with mechanical exactness throughout the earth-sphere, we infer that these empyreal rays at their points, lines, and angles of meeting, in direct opposition, on the earth's surface, combined as its needed fulera in becoming the neuro-skeletons of its surface-forms. The solid framework, or osteology, of an organism is the basis of its motions, in the sense that their interstitial animal-cells are the points whence the empyreal fluids, that traverse the visible and invisible nerves that insulate and permeate every channel of circulation, including the fibres of its softer tissues, are reflected in response to external pressure or excitement; each afferent and efferent nerve, like the conducting wire of a magnetic telegraph, conveying its message simultaneously, both *directly* and *reflexly*.

This circuit of sentient vitality is incessant in every living organism, regardless of outer consciousness, in virtue of the unchanging tendency of essential substance toward equilibrium. Only as we perceive that this tendency is due to its intrinsic elasticity, and that all changes are within the inseparable *form* of Infinite Being, can we perceive that the incipiency of more and more complex forms is in the ratio they contribute to the differentiation in form and function of the sphere they constitute, whose essences are the common pabula of each and all, those of their atmospheric elements being basically nutrient to their more and more matured specific types, within consecutively higher atmospheric strata.

8. In our attempts to trace the earth-sphere's conformation in that of its animal forms, we assume that the different gaseous fluids, that make up its different currental systems, have always flowed in such directions, that, while forming its internal and external organs as a whole, the more and more interior repetitions of these currents were forming corresponding organs, within and on its simultaneously developing animal organisms. Even when it was a simple mass of cometary substance, its fluids must have been arranged in strata, in accordance with their elastic tendencies, thence must have flowed in directions consonant with the counter-pressure of external substance, thereby forming more and more interior currents, and lesser and lesser inter-strata. The counter-centrifugal elasticity of interiorly condensed substance, and the counter-centripetal elasticity of the rarer substance by which it is surrounded, are the omnipresent counter-forces of creation, or generation, on every plane of existence. We therefore accept the forms and motions of its consecutively more complex animal forms, as inter-repetitions of those of our sphere at corresponding stages in its maturement; hence assume, that, when its bi-meridian, and bi-polar, and its posterior and anterior compressions were such that its form resembled the consecutively more complex radiata, infusoria, polypi, acalpha, entozoa, and echinodermata, became its successive inter-creations, its animal vitality.

From the fact that the planets increase in axial velocity eastward in the order of their increase in distance from the sun, we assume, that, when it attained the echinodermatous, or globular form, its nearness to, and rapid associative rotivity with, the sun's superficies

were such that the earth rotated westward, like its own inter-tropic surface-waters in the present.

This embryonic condition is apparent in its earlier forms *in embryo*, as is its reversal eastward, in its later forms, assumed to be the dividing line between the incipiency of articulates and vertebrates. We further assume, that, when the earth's trilobed crustacea culminated as a trilobed encrustation on its surface, this crust was a mediate matrice between its lower semi-solid strata and its dense, vaporous atmosphere, below and above which their counter-tending essences met and combined, as the elements of their respective interforms. As the constituent essences of these counter-stratal interforms are fruital to the elements of like interforms on plus and minus mature planes, their structural propensities were necessarily correlated, as are those of air-breathers and water-breathers in the present, differences in their modes of moving being the result of differences in the mobility of the elements, that nourish their forms and festerate their motions. The fact that the gillous projections of water-breathers lessen in height, in the order of their increase in altitude, which is the order in which the lungs of air-breathers deepen, is evidence that the upward pressure upon the former was decreasing, while the downward pressure upon the latter was increasing.

Hence our inference that these differences in pressure are equally manifest in all their external appendages.

Although the longitudinal axis, or spinal column, of all vertebrates, is inherited from the earth-sphere; yet the nerves leading therefrom, assumed to be intypes of the sun's rays deflected from the plane of the earth-sphere's axial equator, must have formed dermal ap-

pendages on the neuro-skeleton of each species, in accordance with the pressure upon their common matrice at their native altitudes and latitudes, at the era of their incipiency. Water-breathers, like air-breathers, inspire air from their surrounding elements, through their surface-pores, which air must needs be condensed, to accord with that involved in their constitution, which is of medium density compared with that inspired from above and below their medium altitude. They move in different directions, in virtue of the *expansion* or *re-action* of the essences inhaled from different directions, through their counterpart organs of respiration. For example, when at rest, those inhaled through their gills are counterpoised by those inhaled through their caudal fins.

In moving forward, the condensive force of the former impinge directly and continuously upon the latter, which, in expanding correlative against the water, push them in that especial direction. This conjugated counter-longitudinal force is correlated and co-acts with that of the essences inhaled through the dorsal and ventral fins, and that of those inhaled through the bilateral fins, by means of which they move downward and upward, and bilaterally, and in every intermediate direction. The same principles are operative in rowing a boat in different horizontal directions. When the aerial essences, condensed within the lungs and intervascular bronchia of the rower, are forced through his arms and oars into the water, their expansive force is pitted against that of the water it temporarily condenses. This reactive force is correlated with the condensive force of like essences, forced into the poised portions of his body and his oars *from whatever fulcra*

their re-action, coincident with that of those he is continually inhaling through his lungs. Evidently the earth's rays, prior to its independent axial rotation, were diffused, like the movable spines of echini, or sea-urchins, which are nearly globular, except the flattened base.

Then we find the globular sunfish, which in swimming turns upon itself like a wheel, as the representative of the earth-sphere's axial rotation, prior to its outbirth from the sun's aqueous stratum. Then, again, we find elongated echini, with more refined shells and finer spines. Then, as these diffused dermal appendages gradually disappeared, in the order the bilateral fins appeared in the fish series, first to a continuous dorsal and ventral fin, then to three, then to two, then to one dorsal fin, we recognize them as the functional representatives of the locomotive organs of birds and reptiles, varied to accord with their respective altitudinal ranges; hence recognize them as the representatives of the *forms of force* (all of which as wholes are necessarily non-objective), by whose agency the earth-sphere gradually outgrew into the sun's aerial stratum. Surface swimmers, like amphibia, need, and have, no dorsal fins; while the bilateral and ventral fins of the fish series are represented in the locomotive organs of the various species of air-breathing vertebrates. We infer from the osteology of fossil fishes, whose ribs are ankylosed with the vertebræ above and below the spine, while the ribs of more complex or recent species are ankylosed bilaterally at corresponding angles, that the earth, at the advent of the former, had attained but a limited degree of axial resistance; the acme of external pressure being bilateral to its equator. Hence, that

the *reflection* of this bilateral force, in combination with that of the sun's direct and reflex rays, was at corresponding angles above and below the earth's equator at their native altitude. These altitudinal ribs are not only present in their present representatives, but they are present as the spinous processes of more and more complex or recent species of water-breathing and air-breathing vertebrates, to which the nervo-muscular fibres, that control the movements of their bilateral ribs and limbs, are attached.

The lessening bilateral pressure upon our sphere is represented in such species of fish as have their bilateral ribs ankylosed with their vertebrae, with boneless spaces along their tropics, between them and the loose ventral ribs. If, as assumed, the interspaces between the vertebrae of animals are repetitions of the points of equilibrium between the sun's light and dark rays on the plane of the earth's equator during a terrestrial year, and that these equinoctial points decreased in number in the ratio the co-rotivity of the earth with the sun's superficies and the sun's co-rotivity with the superficies of its sun decreased, then we are licensed to infer that species in which the number of vertebrae is lessened, and the movements of the lessened number are correspondingly complexed, became incipient within a later surface stratum; while those in which the number is neither lessened nor their movements complexed became incipient within an earlier and lower surface stratum, but which, by the re-embodiment of their nuclear representatives within the higher and more mobile stratum, are correspondingly more free to express their pre-stratal motive tendencies.

Then assuming, as a correlative inference, that the

space inclosed within the semicircular track of the sun's perpendicular and most oblique inter-tropic rays, bilateral to the earth's equator between the equinoxes, is prototypal of the centrum within each vertebra, while the cavity of the spinal cord is an intertype of the space inclosed within the track of like rays from the sun's sun, focused upon the earth's equator in correspondingly smaller areas in accordance with their more distant source, the bilateral appendages of these vertebræ — nervous and osseous — being intertypes of the bilateral reversions of these *intra* and *extra* solar rays, we obtain a faint idea of the otherwise inconceivable minuteness of the essences that constitute the nervo-vital fluids of the earth's surface-forms. There are fossils, and also living species, that might properly be termed trilobed crustaceous fishes. Evidently their advent was intermediate between trilobites and perpendicular-ribbed fishes, being coiled in their embryonic state like trilobites, and straightened in their mature state like fishes. If, as assumed, the elements of an intermediate stratum are combinations of the elemental germs, indigenous, as germs, to the strata imminently above and below it, then living species and fossils, of intermediate structure, are crosses between more mature species of the same genus or general type, indigenous as species to a higher stratum, and a less mature species indigenous to a lower stratum.

The wherefore that more complex types resemble, in their embryonic state, less complex types in their mature state, is because the latter become incipient within an earlier surface stratum, and the former within a later; the atmospheric, or male, germs of the less complex types being indigenous as such to a lower, and those of

the more complex type to a higher, atmospheric stratum. Although commensals in the present, they did not subsist upon the elements of the same stratum during the same stage of their typal evolution.

This peculiarity is more apparent in the vegetable kingdom, especially in horticulture, by which the germs of less complex plants, shrubs, and trees are rendered more complex by exposure to greater degrees of heat and light, with more liberal supplies of denser essences.

10. By regarding the direct and reflex rays of essential substance, with their concentric circles of intermediate force between different altitudes and latitudes of comminution and coalition, in their endless repetition, as the *thorough-base* of motive power, we obtain a faint conception of its utter unchangeability as power; all changes in the motive tendencies of its forms being within the never-changing *form* of its spherical force, as the content of infinite space. Thence, by regarding complexity as the *number of ultimate centres, or axes of motion*, which a form inherits in virtue of being compounded of essential germs fruital to two *spheres* of maturement, both represented in each mated or twain-in-one germ, which is, *per se*, the union of two modes of moving, we idealize the assumption that life, in being the tendency and actual movement of substance toward a never attainable equilibrium, is necessarily endless, owing to the spherical form of gravity, and the impossible cessation of reciprocal interchange between its successive *planes* of maturement; the individuation and parturition of specific germs by maturing forms, being as impossible of cessation as their assimilation of nutrient germs. These counterpart processes, by means of which essential germs fruital to forms on

the mature plane become constituent germs on their embryo plane, thence grow up to the mature plane, *is all there is of formation physical or metaphysical.*

The CAUSE of their combination as growth, as well as of the incipiency of each form, is disparity in spaciality between *nutrient* and *constituent* germs. The EFFECT of growth is the expression of the modes of moving, attained by their combination on consecutively higher planes. But it is impossible to conceive of the continued existence of present forms of life as the interforms of higher or more refined strata, only as we perceive that the laws of their present life are necessarily omnipresent, and eternally efficient in reciprocating these counter-needs on every plane of maturity.

The assumption that all forms outgrow by growing above their own nuclear organisms, is based upon the perception that the nutrient germs, that become the super-bases of the constituent elements of the earth's present surface-forms, are fruitful to the elements of their ancestral types, the *now* present interforms of consecutively higher strata; while the nutrient germs that become the bases of their elements are also fruitful to these ancestral types, which were priorly concentrated as their elemental ova within consecutively lower strata, whence they are continuously hatching, and ascending by combination with their respective atmospheric counterparts. When spontaneously organized as solid, aqueous, aerial, and super-aerial compounds, each compound spherule is as really an individual organism as is the more complex organism with whose elemental germs its elemental germs, the ova of its elements which make up its nuclear embodiment, become nutritively combined.

Although utterly non-objective as individualities, yet, inasmuch as organization is purely essential, each compound spherule must be reduced to its ultimate analysis before it can become an essential constituent of another organism.

This perception is the basis of our assumption that the cutaneous afferent lymphatics, and the perspiratory vessels, efferent lymphatics, through which the essences of meteoric water are transmitted, and the cutaneous and pulmonary air-cells, through which aerial essences are transmitted, and the afferent and efferent nerves, through which super-aerial essences are transmitted, do as truly mould or transmute the motive or elastic force of the essences of these atmospheric spherules, by endosmose and exosmose, as do their counterparts within the alimentary canal mould the essences of the solids and liquids, subsequent to the decombination of their elements by chemical analysis. This transmutation is, necessarily, within the limits of conformatibility.

The universal fitness of things, through a reciprocity of opposite needs, consists in the continuous outbirth of elemental germs as fruitage, and their inbirth as nutrient, from and within every form in nature.

The nuclear organism, when separated by "somatic death" from the essential organism, by whose forms of moving it was vitalized during its so called "somatic life," is essentially alive, in being the sum of the ova fruitful to the essential elements of the latter. If otherwise, the essences of its elements could not become transmuted as the living constituents of other organisms.

The indebtedness of the essential organism to the

nuclear embodiment, through which it subjected the essential germs fruital to the interforms of a higher stratum, thereby becoming fitted to ascend thereto and subsist upon its more subtle essences, is fully repaid by the increased comminution and subtility of the latter, in consequence of its organization.

While we perceive that the individuation of essential germs is necessarily ceaseless and omnipresent, we recognize the individuation of complex germs, as the common offspring of the two sexes of a species, as being limited to the incipiency of the earth's surface-forms.

The transformation of insects clearly reveals the power of self-differentiation in function, to accord with the conditions by means of which the greater complexity of form is attained.

The goddess of liberty, inherent in each pupa, wisely restricts its forces by a self-constructed incasement, thereby so moulds its organism that it becomes the goddess that inspired its activities.

11. In tracing these principles in the functions of our sphere, we assume that the deflections of the earth's counter-currents of water and air, bilateral to its equator, and their reversions at the tropies and polar circles, have always been repeated as the neuro-skeletons of its cotemporary animals; while the movements of its atmospheric poles about its axis are repeated in the functions of their locomotive appendages, in the sense that its one annual rotation as a sphere is the effect or outer expression of the diurnal rotations of its nucleus. In proof of this, we find the earth's magnetic equator, and its magnetic tropies and poles, repeated in blocks of magnetic iron. Owing to the earth's increase in axial velocity and decrease in orbital velocity, its resistance

to equatorial super-pressure increased in the ratio its latitude decreased.

This resulted in the combination of its equatorial rays with the sun's direct and reflex rays, at increasing heights, and the greater extension poleward of the super-surface currents they became, prior to their reversion as equatorward surface currents. In accepting these upper and lower bi-equatorial currents, on the dorsal or anti-sunward hemisphere of our sphere *in embryo*, as prototypal of the extension bilaterally of the folds, in the germinal membrane of the chick *in ovo*, which enclose the ribs and the rudiments of the limbs, we perceive that the extension bilaterally of the ribs, and perpendicularly of the limbs, in the vertebrate series is in the order of their increase in complexity and maturity, or freedom to move. The fact that the osteology of sea-mammals is more complex than that of birds, but correspondingly less mobile, is the ground of our assumption that birds became incipient in a lower stratum, thence were repeated in the incipient stratum of the former. In the tail-feet of the seal, the type of sea-mammals, we find the longitudinal position of the lower limbs of the human species.

In birds, assumed to be the earliest air-breathing vertebrates, we find the nearest approach to the human voice, and the least complexity, but greatest mobility, of the upper limbs.

While we find, in the gradual development of bilateral ribs in the fish series, evidence of our sphere's gradual increase in bilateral resistance, in the ratio of the earth's freedom to rotate axially during its gestation within the sun's aqueous stratum, we find in the functions of the four limbs of the tortoise species,

which, as a form of forcee, is adapted to locomote both within the aqueous and aerial strata, our highest ideal of the movement of its atmospheric poles, through whose bilateral actions and re-actions it gradually emerged into the sun's aerial stratum. Being gestated by and between the counter-tending rays of its parent suns within the maternal sphere, it is evident that its increase in axial resistance was coincident with, and caused by, a corresponding increase in the sun's axial velocity ; the increasing forcee of which, in the ratio of the diffusion of its nutriment, lessened the earth's orbital velocity.

Just as the posterior position of the heart in tailless mollusea indicates greater external pressure, and greater internal resistance posteriorly ; so the shortening of the anterior, and the elongation of the posterior, extremity of fishes, the heart being nearer the head, indicates increasing persistence and resistance anteriorly. Hence our assumption that their general conformation represents that of the earth-sphere at the era of their advent. As lower mollusean forms, although capable of separate existenee, absorb their nutriment by linear anastomoses, the anterior extremity of the outermost polyp being attached to the posterior extremity of the next outermost, thus on, through the chain, they are more complex ; hence, evidently, succeeded those segmented articulates, whose segments are not self-sustaining individually, otherwise than in their ability to grow new segments when artificially separated. And as the lower classes of the latter have neither an interior or an exterior skeleton, with no ability to move backward, moving forward under the slightest friction, even when decapitated, we assume that the substance of their prime

progenitors was moulded into these peculiar tendencies when the earth-sphere's substance was simply an elongated and segmented mass, propelled by the combined force of the sun's direct and reflex axial waves, acting upon it posteriorly. And as crustaceous animals, articulate and mollusean, are more complex internally, we assume that they became existent as the prime external skeleton of the earth-sphere.

The assumption that the conservation of self-force is the mainspring of progress, is based upon the perception that every mode of moving, inherited or attained by the specific elemental germs that constitute a form *in embryo*, is eternally *conserved*, in the sense of being continuously efficient as a specific structural proclivity, during every stage of its development on every plane of being.

The conservation of its self-attained motive powers, its nutrient forces, is necessarily endless progress, toward and from new centres or axes of motion; all of which are increased as repetitions of external motive centres, within itself or between its innermost and outermost fulcra. In virtue of the endless efficiency of its structural proclivities, the earth-sphere's prime skeleton is its prime skeleton still; the substance of which is refined and expanded by comminution, as its outermost atmospheric incasement.

An increase in anterior pressure would, necessarily, cause a gradual recurring downward of the anterior extremity of its elongated form, and also a greater projection poleward of the turning-points, where its upper or poleward-moving fluids became reversed, as lower equatorward currents.

These changes were repeated in the neuro-skeleton of

its incipient species of animals, by a gradual recurring of the foremost vertebræ, and a gradual elongation of the ribs, and also repeated progressively in succeeding species, by the development of a definite, dermal skeleton, thence by a gradual coalition of bilateral locomotive appendages, which ultimated in the elongation and functional complexity of the lessening number proportional with their decrease; the recurring of the vertebræ basic to the organs of special sense being also proportional.

12. However complicated a structure may become by the enfoldings of its external surface, and the consequent convolutions of its intestinal canal, and of the tubes and tubelets within the organs which are basically nourished by its fluids, yet the only mouthlets, through which its entire nutriment is absorbed, are its prime surface-pores. This fact is most apparent in the lowest specific structures. As each form of life is central as regards the gravital tendencies of the essences that constitute it, those causative to their translations and equilibrations, in such forms as the needs of the peculiar structure they become demand, are necessarily its vital functions. That is, the essences received from above, and below, and bilateral to, its position within its sphere of subsistence, in becoming conjugally mated as the central and super-central nuclei of its different species of elements *in embryo*, become compound self-living spherules, capacitated to expand and contract in these directions; the sum of whose vital functions is the *life* of the specific form they constitute. The fact that animals become disrupted in vessels void of air, reveals the necessity of external pressure as a formative function. If, as assumed, the weight of the elements of

form in their wholeness, consequent upon their inability to expand above a definite degree of density, be the prime cause of their rotation as the wholeness of gravity, then their subjection to opposing spherical positions during equal periods of time, which results in their equilibration as forms of substance, capacitated to move in directions diametrically opposite to those from which their constituent essences were brought together, *is spacially inevitable*. That is, each mated twain-in-one spherule conditions the movement of its mate in the direction whence it was brought into its conjugal relations, their positive and negative meridianality being continuously reversed, by their circulation above and below the medium altitude of the form they constitute; while the dynamic equilibrio of their austral and boreal polarity is maintained, by the essences absorbed during their circulation bilaterally across its equator or median line.

As the content of infinite space, substance is the metes, and bounds, and motive forces of every form within it. Like those individuated within it, its form is the basis of its motions. Its diffusion or condensation does not, and cannot, affect its intrinsic power to move in accordance with its spherical positions. It matters not that scientists term the motions of its forms "automatic," simply because they have discovered that it is their *substance* that moves. It is the substance of forms that *feels*, that reflects, and re-reflects *ad infinitum*, which is *per se* thinking, as well as acting and re-acting. In a word, substance continuously moves in the direction of the least resistance, which is just where its resistant force is needed by the forms it becomes; the satiation consequent upon its re-ac-

tions, as well as the prior promptings of the needs, being *felt* by the *substance* of the forms regardless of classification.

If these attributes of substance in its wholeness, is the wholeness of presence, of power, of design, of sentience and consciousness, then, by parity of reasoning, each form represents so much of their entirety as are involved in the specific arrangement of its essential constituents, which determines *its specific attributes*. During the locomotion of animals, their feet are receiving the minus and plus mobile empyreal essences of the earth and air in continuous alternation, simultaneous with the plus and minus condensation of the empyreal essences of intermediate altitudes, within their pulmonary and cutaneous air-cells. In virtue of the centrifugal force, resulting from the alternate condensations and expansions of these "imponderable agents" within his organism, even reasoning man, the friction of whose entire weight alternates between the earth and air at every step, walks hour after hour without the slightest effort of his boasted will-power. Every form is continuously receiving from and imparting to every other contacting form its peculiar empyreal powers, all of which are more or less affected thereby.

When irritated, centipedes and like animals move their feet in a natural way after decapitation, from the efficiency of the fluids communicated through or from the irritant used.

The fact that the vital fluids, in every department of man's organism, flow coincident with its needed movements, does not in the least lessen his inherent nobility, or the intrinsic vitality of his essential organism. His ability to sense, to reason, and to execute his designs is

simply commensurate with his needs. The same is equally the case with the lowest protozoan.

His selfhood includes every attribute of every atom of his essential organism, which, as the sum of their essential qualities or ultimate functions, includes the inherited tendencies of every form to which they have been nutrient, thence ex-nutrient or fruital. It does not lessen man's dignity that he, with every other form constituent thereto, is gestated within a common matrix, the earth-sphere's present surface stratification. Neither does the self-evident fact that this stratification is the common offspring of the nuclear and atmospheric organisms of, to us, pre-existing stratifications, the former somatically defunct, lessen the glory of a future life, in proving it to be the continued conscious existence of the essential qualities of the organic forms that culminate as *its* essential qualities in the present, when, at its somatic death, its nuclear equivalent, the sum of theirs, shall have become a part of the nuclear equivalent of the earth-sphere. The continued elevation of the former is purely consequent upon the resurrection of the essential germs of the latter's defunct interforms, and their enspheration by the essential germs of the former, thence their outgrowth into corresponding forms. Not only is our stratification as a definite spaciality circumscribed and held in position by and between the nuclear and atmospheric organisms, respectively maternal and paternal, of the earth-sphere's past and prior-past surface stratifications, but the constituents of its every interform are circumscribed, and held in position by and between the counter-foreitiveness of the nuclear and atmospheric equivalents of their culminate representative,— the form, as a whole.

13. Although its compounds are classed as "inorganic," yet the earth proper, the essences of whose solid and liquid elements are the bases of its atmospheric compounds and complex forms, has its systems of circulation as truly as do the latter. The ingrowth of these organic compounds, with their systems of circulation, accounts for the distortions in its former strata, for earthquakes, and volcanic eruptions, all of which are unaccountable upon the hypothesis that its substance is *inorganic*. A moment's reflection is sufficient in which to perceive the utter impossibility of the existing relations between the earth and its atmosphere, but for the organic relations existing between the elements constituting both. To imagine the effect of their decombination, their complete depolarization into elemental spherules, each alike free to express its inherited tendencies, is our highest conception of chaos. We can readily conceive of the existence of essential substance in a "diffused state," but can form no idea of its foreitiveness other than its subjection to the forever unchangeable law of order, inherent in its *spherical form* as a wholeness. Its perpetual life-lease, or dynamic power, is indelibly enstamped upon the *form* of its foreitiveness.

Owing to the form of gravity, the pressure of the sun's atmosphere is proportionally different on different portions of the earth's atmosphere. Below the earthsphere's medium altitude, the substance of the solar atmosphere is plus condensed compared with that above it; while that on its medium plane is of medium density. Owing to the sun's attraction, and the earth's consequent associative or orbital revolution therewith eastward, the static pressure is proportionally greater

on its eastern horizon, and lesser on its westward horizon. And, owing to the increasing density of the solar system's internal atmosphere from its equator bilaterally, its aggregate pressure is greatest on the earth's northern atmospheric hemisphere when it is north of the equinoctial, and least on the southern; and *vice versa* when south of it, varying in accordance with its distance therefrom. The pressure decreases from its eastern to its western horizon, in the ratio the earth-sphere's orbital momentum decreases. In direct opposition to these, are the alternate plus and minus pressures of the direct and reflex atmospheric waves, caused by the *earth's* axial rotation. As the combined force of the sun's direct and reflex waves are proportional to the distance of their planes of contact from the base and super-base of solar gravity, that is, their quantitative, or static, force, multiplied into their combined velocity, or dynamic force, which, in turn, is proportional to the velocity of the sun's superficies, the *excess* of their combined momenta upon its western hemisphere, above that upon its eastern, is the measure of the earth's orbito-axial velocity at its present altitude. When the horizontally compressed atmospheric gases on its front, from the plane of its longitudinal axis downward, become perpendicularly condensed by being forced under it, they expand with great force, at its equator on its western horizon; where, on being met by the combined force of the sun's direct and reflex waves, they are reflected over it eastward, with corresponding velocity.

This culminate flow of its atmospheric fluids westward above the earth's equator on its sunward or ventral hemisphere, and eastward above its equator on its

anti-sunward or dorsal hemisphere, is prototypal of the flow of blood, or its representative fluids, within the ventral and dorsal trunk of its simpler animal forms.

The projectile force of the sun's rays is proportional to the expansiveness of their substance. Their deflection westward increases in the ratio of their increase in distance from the sun's superficies. This divergence in the ratio of increase in space from the centre of a sphere, is not an absolute lessening, but only a corresponding *diffusion* of their forcitiveness; which diffusion decreases in the same ratio as their reflexed rays become converged from their peripheral limits.

The wherefore of the planets' decrease in orbital and increase in axial velocity in the ratio of their increase in distance from the sun, is purely their increase in freedom to move individually in the ratio its rays are diffused.

Perceiving, as we do, that these inferred currents are necessarily existent as the result of purely mechanical forces with substantial bases, we are prepared to find them repeated in the earth's animal forms, differentiated to accord with its status at their advent, and with its subsequent development. This, because essences from the currents surrounding them are continuously being forced into and becoming combined within them, as the vascular systems of each. That is, these fluid combinations, in virtue of their inherited tendencies, *flow in such directions, and staticize in such forms*, that they repeat the same forms of fore or organic functions as the exterior currents to whose fluids they are respectively fruitful.

In the lowest animal forms in which currents are traceable, there is a flow of watery fluids backward from

the mouth, which return mouthward as an upper current, with no apparent boundaries, except the walls of the general cavity of the body. In the lowest forms of a true sanguiferous system, the vital fluids are conducted in these same directions within what are termed a "ventral" and a "dorsal trunk," by the alternate contractions and expansions of its walls. The functions of this continuous trunk, the flow of whose fluids is in two directions, are repetitions of the alternate contractions and expansions of the external surface of simple, segmented animals, destitute of conducting vessels. The fact that this simple structure, with its simple propulsive force, is repeated in the colon, the lowest section of the alimentary canal of the most complex organism, corroborates the assumption that the structure of succeeding species repeat, as their consecutively more complex organs, the structure of preceding species in the order of their advent, as more and more complex organs within their common strata of subsistence. The mouth, the stomach, the smaller intestines, and the colon, of the human organism, are *seriatim* involutions of the mechanical powers of those of all animal structures below its status of complexity. In recognizing their indigenous forms as miniature representatives of the earth's under-world forms, we assume that their essential germs are the bases of like, but more complex, forms, within the higher systems of circulation in the human organism; in like manner as those of the earth's sub-stratal forms are the bases of its surface forms. So the sympathetic nerve, with its bilateral ganglia, is unquestionably the ventral cord or cords of articulates, inter-repeated in vertebrates as the bases of their spinal cord or cords; the functions of whose motor and sensor

nerves are inseparably inter-complexed therewith, in its sub-divisions within every section of the alimentary.

The earliest organs of locomotion, in the animal series, are manifest as two rows of cilia on the sides of their ventral surface. These are assumed to be repetitions of the currents of essential substance, deflected from either side of the earth's equator downward, in accordance with its globular form. These, being compounded of the earth's direct and reflex perpendicular rays, are now, as then, deflected backward, in accordance with the earth's progress eastward, but with ever-lessening force.

This backward deflection, which is necessarily coincident with the reflex or sub-surface force of the earth's inter-tropical "trade currents," at their points of meeting on either side of the equator, are manifest in the position of the cilia-like feet of myriapoda; and the partially reversed position of their anterior feet reveals an increasing degree of resistance to posterior propulsion.

This first indication of voluntary stepping is also manifest in the ribs of serpents, *their* organs of locomotion, which are assumed to be coalitions of the primal nerves bilateral to the spinal cord.

The assumption that the same principles are involved in the development of the locomotives of serpentine articulo-vertebrates, is based upon the perception that these *internal* locomotives are intermediate between the more or less ciliated limbs on the ventral surfaces of articulates, and the less numerous, but more complex, limbs projected from the dorsal surface of vertebrates; and also upon the more embracing perception that each succeeding species, in coming into existence within a

stratum of elements *above* the successive strata within which its predecessors became incipient, includes in its structural propensities those of all preceding species, in the sense of growing the stratum as a new system of circulation within itself, which not only includes every species of elemental and complex movement included in theirs, as a whole, but it is superposed upon the several systems, that represent those of its predecessors *seriatim*, in like manner as the earth's present surface stratum includes the essential representatives of all the elemental and complex forms, indigenous in the past, as surface-forms, to the consecutively lower strata upon which it is superposed.

14. The same principles are manifest by the empyreal elements whose combined modes of moving are, *per se*, the vitality of each and all, and are so recognized, when abstractly investigated. Their different qualities are expressions of the same modes of motion, under the different degrees of surrounding pressure, at different altitudes and latitude, within a *spherical form* of gravity. Each color is an expression of all the centre-tending and ex-centre-tending rotary movements, included in the colored rays above and below its spectrum altitude, because a counterpoise between their equal, but opposite, actions and re-actions. That is, the increasing orbital, and decreasing axial, velocity of the spherular nuclei of each lower color, counterpoises the decreasing orbital, and increasing axial, velocity of those of each higher color. Whatever the spectrum altitude at which these descending and ascending nuclei combine, their counter-tendencies, their absolute force, is equal, difference in color being simply different degrees of freedom to express the elasticity of their substance, consequent

upon its degree of density or tension. When the spherules involved are forced into the more mobile stratum of a higher color, their greater orbital range, and more frequent axial glintings, *express the higher color*. *Per contra*, when forced down to the altitude of a lower color, their nearer position to their common axis of motion so decreases their range and rotivities, that they *express the lower color*.

This is why each substitutes the expression of the other, under opposite spacial conditions. This corresponds with the arrangement of a voltaic pile, which will generate electricity, if three different substances be placed in contact, and repeated indefinitely in the same order. This, because every substance has its own peculiar quality of electro-magnetism. It matters not what they are, or how arranged, one is necessarily positive, one negative, and the other intermediate. As the larvæ of insects narrow and shorten their bodies, and elongate their limbs, by self-increase, by which means their vital fluids tend in the right directions to effect the disintegrations and re-aggregations necessary thereto, we assume that the earth must have passed through corresponding changes prior to the incipiency of vertebrates, to which their *imago*, or perfect insect state, is a nearer approach.

The outgrowth of larvæ from lower to higher altitudes, and from the aqueous into the aerial stratum, is typical of the continued existence of their essential organisms within a still higher stratum; and also typical of the ascension of the vital organisms of all nuclear forms. The fact that every perfected cell—animal, mineral, vegetable, and gaseous—is self-increased by the condensation of its peripheral fluids, and also that

every ovum and every foetus is thus incased, the fluids interior to which move coincident with the currental systems of the form within which they are developed, and also of those of the strata within which their proximate matriees are developed, is our license for assuming that the vital organism of each is *contradistinct from its vascular incasements*; hence, that each culminate vital organism is the sum of the vital organisms of the circulating media within its vascular organism, which is but the sum of their elemental ova, their temporary fulera, by means of which the vital fluids that construct it are enabled to subject like fluids from conseeutively higher strata, thereby qualify it for existence therein as an organic unity.

CHAPTER XI.

1. THE supposed discovery of a planet between Mercury and the sun, and of a satellite moving around Venus, whether or not fully substantiated, is in perfect accord with the order of the visible planets of the solar system. As each planet-sphere necessarily repeats within itself all the stratifications basic to its existence, as *its internal organs*, or fulera, our stratification may be the fourth within the earth's gravitational limits.

Be that as it may, we will simply accept the visible, and assume that when the prime and secondary stratifications of our planet-sphere had completed their cycles of maturation, and their atmospheric organisms had ascended as the nuclear organisms of its outermost and sub-outermost atmospheric stratifications, and their nuclear counterparts had descended as its innermost and next innermost nuclear stratifications, our world, or stratification of compounds and complex forms, became incipient between them as their common offspring.

We will next assume that these nuclear worlds have "passed away" as regards their organic forms of life; and that their mighty aggregations of earth, water, air, and fire are simply "essence" and "form," in the sense that the essential substance involved *inherits the tendencies to move in directions the exact reverse*

of those in which it moved in becoming aggregated in these forms.

In virtue of this, it is adapted to combine with like essential substance, subsequently and presently following the same cycles of descent, its liberation from its apparent latent state being its gradual ascension into greater spacial freedom as a whole, and the expansion of the ultimate germs involved, consequent upon the growth of the planet-spheres below its solar altitude, and upon like growths below the spherical altitude of the solar system.

Each organ of the universal organism being a repetition of itself within itself, this involution of its external force as internal force is necessarily omnipresent. Hence our sphere, in its introversion as an ovum of the outer universe, had its central "germ" or "white yolk," the basic equivalent of the external empyreal substance with which its substance continuously combines in the present as in the past, thereby continuously repeats its external organs or forms of force within itself *seriatim*.

This extremely condensed solar heat being its central sun, is continuously responsive to the rays of the external sun, — to that which it priorly was.

Its inner soul, as also that of its every interform, whose minus maturity, on a more interior plane of centrifugal or re-active force, counterpoises the Infinite Over-Soul, is equi-infinite in being an integral part of that which "it was, and is, and is to be forevermore."

When quantitative equivalents of elements minus and plus in spaciality or specific gravity, are staticized as *organic* forms by the equilibrium of their opposing tendencies, their power to move in opposing directions, under corresponding degrees of minus and plus external

pressure, is not a *newly-created vital force*, but simply a modification of, or change in, the spacial extension of the elements surrounding the forms, as well as of those constituting them. This, because *life is a unity and an endless continuity*, in virtue of being *the intrinsic elasticity of essential substance*, which, owing to its spherical form as the content of the essential points of infinite space, moves as the essential points of time in an infinite number of directions toward a never attainable static equilibrium. As forms are contradistinctly motile only in the sense of being separately incased, so that their radiated essences, when combined with like external essences centring toward them, combine as their surface currents—nuclear and atmospheric—which flow in mediate directions, because repetitions of like currents on each more embracing form or sphere, we readily perceive that *forms of substance* in their absolute self-completeness are necessarily a unity ; and also perceive that the essences, staticized as the somatically “dead forms” that make up these “past worlds,” are not only intrinsically alive, but, as their ova, inherit the essential qualities of their ascended predecessors *now* re-embodied as the interforms of, to us, “future worlds,” hence tend to move as their specific elemental germs tended when on the same plane of development. As the essences of these lower worlds are condensed in the degree those of their ascended atmospheric counterparts are expanded, compared with a medium density, which has resulted in their combination as our world of forms within an intermediate stratification, we perceive that the latter, as the essentially dynamic organisms of the former, are, to us, on the post-mortem and prior post-mortem planes, while the former, as the sum of the essen-

tial germs *in ovo* of the latter, are on more and more immature or embryonic planes, compared with the immediate maturity of our world of forms. If this be true, then parentage and offspringage are but different stages of development, in direct lines of ascent and descent, from and to the plane of incipient formation, *the intermediate stratification of terrestrial gravity*. That is, the ultimate germs fruital to the interforms of these lower and higher worlds, to us past and prior past, future and second future, become combined as the elements *in ovo* of like forms constituent to our present world; those fruital to the female and male of each species being rendered combinable, as the elements *in embryo* of their common offspring, by like plus and minus condensation within their counter-spacial organs of generation.

The ability of the sexes to so modify the elasticity of their fruital germs that they combine as females and males, both on the pre-specific and on the specific plane, is in virtue of the bi-sexuality of each.

When we take into account that the nuclear essences, fruital to forms matured within greater areas of space, are continuously becoming centripetated by condensation within lesser areas of space, while those fruital to like forms *in embryo*, within lesser areas of space, are continuously becoming volatilized and centrifugated by expansion into greater areas of space, we perceive that there must come a time when those thus combining by opposition within our world would become so condensed and extended as to be objective to human sense, *if incased within integuments adapted to expand correspondingly*.

The fact that the integuments of the dual organs of generation in the two sexes of each species, which are plus and minus spacial in each sex, those of the male

being least and most capacious, *are thus adapted*, so that the essences fruital to the various species of elemental spherules that make up their organisms develop as the male and female progenitors of their specific structure within counter-spacial organs in both sexes, in the sense that their plus and minus condensation always represents the lesser maturity or mobility of the female germs, and the greater maturity of the male germs on the specific plane. In combining as the soul-germs of their specific offspring on the intermediate plane of maturity, the minus maturity of those constituting the protozoan ovum of the specific female counterparts the plus maturity of those constituting the protozoan ovum or spermatic fluid of the specific male. Or, in other words, the former supplies the immature nutrient force or basic food, and the latter the super-mature nutrient force or super-basic food, each supplying what each needs to dispense with. Thence being circumscribed by the integuments of the inner and outer ova, these twain-in-one germs become *organically alive* in virtue of their own intrinsic elasticity or vitality, and the motive tendencies inherited by their mouldings *in transitu*, through the infinitude of ancestral forms to which they have been nutrient, thence ex-nutrient or fruital. The union of these counter-excesses of maturity or mobility, on a mediate plane, is identical in principle with the union of the excess of expansibility in solid oxygen with the excess of condensability in atmospheric hydrogen, on the aqueous or mediate plane of expansion and condensation as regards the elastic range of these elements. The fact that the pre-specific germs of simple radiates are not specifically embodied by nutrient germs re-

moulded within the organism of the specific female, or within the integuments of a meroblastic ovum, is our license for assuming that the soul-germs of the least complex forms become organically alive *under the pressure of their common surroundings*. That they become embodied by the essences of surrounding elements, is unquestioned. And that this is effected by their own organic powers is amply proved by their ability to restore not only lost limbs, but their entire organisms from a single segment.

Now, taking it as granted that the increase in complexity of its animal forms was consequent upon the earth-sphere's outgrowth from its own centre of gravity, simultaneous with a corresponding increase in spaciability by every preceding and succeeding sphere, every spherule of each attaining a like increase in freedom to move either associatively or individually, we perceive that this increase of space simply *conditioned* the repetition of these prime soul-germs of the least complex forms within their respective incasements; their *ability* to receive and to direct the movements of the essential substance of their embodiments being in virtue of their *intrinsic vitality*, when thus *organically* or *mechanically* combined.

2. Again, admitting that the alternations of increasing and decreasing external pressure upon the earth and its atmosphere, from its highest to its lowest limits within the solar sphere, and *vice versa*, are repeated as the conditions under which its simplest organisms repeat and complicate their organs, by pupal transformations, as their specific structures respectively demand, we perceive, that, in supplying organs necessary to their own existence at higher altitudes within it, *they are supply-*

ing the very need of the earth-sphere which conditions their existence as its simplest organic constituents. Its more complex organisms are complications of the mechanical powers involved in the less complex, arranged and proportioned as its specific needs, and the general needs of nature, demand. Being an involution of the mechanical powers of all its predecessors, the human organism is the most complex, but is correspondingly immature. The evolution of the human organism reveals the process by which it involves all the elemental germs fruital to the forms constituting our world, upon whose common essence or pabula all subsist. The process is clearly traced in the evolution of the chick *in ovo*, which involves the same principles.

In the first stage, the female germs of the pre-specific ovum become atomically atmosphered by the pre-specific male germs. This becomes visible as the "primordial vesicle." Next, these twain-in-one germs become permeated and separately encysted by the essences of the "germ or white yolk," interior to the food or yellow yolk of the outer ovum of the specific female. This is visible as the "segmentation" of the germ-yolk, which as a whole is termed the "mulberry mass." In the second stage, the "embryonic vesicle" becomes visible. This is the human form on its lowest plane of specific existence,—a simple stomach. This grows by absorbing the mulberry mass, the stomachs of all preceding species, through the pores, or mouths, of its incasement. As the mass diminishes, these twain-in-one vesicles become microscopically visible as the cells of the twain-in-one layer of the "germinal membrane," the assumed intertype of the earth-sphere's prime twain-in-one stratum of aqueous elements *in embryo*,

between which its aerial stratum, with its descending and ascending aqueo-vaporous clemcnts *in embryo*, is assumed to have been developed, in like manner as the middle layer of the germinal membrane of an embryo chick becomes developed between its prime dual layer.

The fact that this middle layer becomes the organism's bronchio-sanguiferous system, is our license for assuming that the entities developed within it are the essential or pre-specific offspring of those developed within the aerial stratum, the essences of the descending or blue-tinted vapors, when absorbed by the venous capillaries, being plus motile in the degree those of the ascending or red-tinted vapors are minus motile, when absorbed by the arterial capillaries; and also for assuming that these entities repeat within it the functions of the specific structures whose mechanical powers are involved in the human structure, the souls of which have become elevated to the human plane, in virtue of their transformation into its image on the essential plane, during the transition of their essential germs through its various systems of circulation. This presupposes that the soul-germs of human protozoa are an involution of the mechanical powers of the protozoa of all preceding species.

The must-be-so of this is perceived, when we reflect that not a vapor ascends or descends, only as it exchanges its denser essences for rarer, or its rarer essences for denser.

In our ideal, the soul of form is the sum of the axes, or motive centres, of its constituent spherules, each of which is self-directive within its own gravitational limits.

As all are subject to the self-directiveness of the organism's gravitational powers, they are omnisensual as a

whole, in virtue of being consensual as parts. They are an inseparable continuity of actions and re-actions, toward and from one common centre. This is, *per se*, the soul's unceasable life, because, in becoming conjoined thereto, the essential soul-germs became combined IN ESSE, and unitized INFINITO. This presupposes that the souls of all forms are inseparably interlinked on the essential plane, the ancestors of each being of one common ancestry; and that, owing to its infinite relations, each is adapted, under normal conditions, to embody itself on each and every plane of maturation, up to its status of complexity.

As the coalition and conimination of substance is determined by distance from the central and polar axes of the sphere to whose motive force the motive force of its every spherule is subjective, each embodiment is, *per force* of its specific complexity or refinement, a fixity within the stratum or strata where it becomes developed as such.

The stratial growth of each soul necessitates its disembodiment on the lower planes of development, and its re-embodiment on higher; the process being analogous to the disembodiment of the pre-specific germs of the human soul on the pre-specific plane, and their re-embodiment on the specific plane. In our ideal of its origin, the human soul is the sum of the dual-centred elemental germs of its parent forms, when combined as its elements in embryo; its outgrowth, or embodiment, being affected by the combination of counter-tending nutrient essences of ever-lessening spacial disparity, between each of these inseparably unitized counter-forceitive germs. The wherefore that these specific germs are inseparable, is because of their essential unity

as spherical counterpoints of space and time within a specific sphere of gravity, constituted of definite mechanical powers specifically arranged; their bodily germs, their elemental ova, being separable therefrom, because on the segregate or ovum plane of formation.

These ova are continuously becoming nucleated, as the substitutes of those which are continuously being parturiated as essential representatives of the human organism on the mature plane; hence they become segregated, when freed, at somatic death, from the inseparable mechanico-vital counterpoise between the bases and super-bases of the soul-germs, by which they were held together during somatic life.

The life of the bodily germs is as distinct from that of the soul-germs, the miniature representatives of the essential qualities of the outer universe that make up the mind's subjective universe, as is the life of the elements constituting any of the soul's more outer agents,—men, animals, and mechanical tools,—which are temporarily subject to its designing and directive powers.

Were not its sentient entities consensual, and competent to subject to its service these agental forces, the soul could never express itself as an individuated *form of force*. And were not the essences of the spherules thus subjected master of their own intrinsic and inherited functions,—tendencies to move in specific directions with definite degrees of force,—they could no more do what their culminate master, the *ego* of the specific form, directs, than could a dead animal do its master's bidding.

Philosophers err in supposing that an artist puts his soul into his imitations of nature. It is *his soul* that puts the soul of nature into his concepitive creations,

one and all, in accordance with his ideals of what nature's embodiments reveal. His artistic imitations are the outer symbolic embodiments of so much of his subjective universe as they include; the whole of which, soul and body, is *increated* within the range of his sense-perception, *by his own individual soul-powers*.

To set on fire a jet of gas, we must revivify its latent soul-powers by impregnating it with essences radiating from a form of substance in that especial condition, it matters not how the fire that lights it is evolved.

Psychologists are equally at fault, in assuming that the ultimate agents efficient in physical and metaphysical phenomena are other than intrinsically homogeneous, or that it is possible to investigate their *doings* disconnectedly. And scientists are equally mistaken, in assuming that any form of substance can move or be moved by any agency, other than by *infusing* into it essences adapted to set in motion like essences within it, which infused essences transmit their essentially elastic force substitutively into whatever it rests upon, the force of whose reflected essences, combined with that of the direct essences, *tend in the direction of the motion evolved*.

3. The adaptability of a body to move or to be moved under any condition, is self-evidence of its ability to receive and to respond to impressions.

When a body is projected into the air, the expansive re-action of the essences forced into it from the projector, is the projectile force that continues its motion. The condensation of these essences increase, during the descent of the body, in the ratio their expansion decreased during its ascent; the weight of the atmosphere, which increases inversely as the square of distance from the earth, being the condensive force. That is, during

its ascent the weight of the atmosphere decreased from expansion, thereby conditioned their expansion, in the ratio its increasing condensation earthward caused their condensation.

There is no magic in the experiment of four men raising a fifth man from a prostrate position by the tips of their fingers, those of the two men being applied to his two sides. The sole "conditions" consist in their breathing as deeply as possible, then all in concert exerting their out-breathing force in that especial direction. This accomplishes the feat. The levers involved are the lines of essential substance passing from the body of the prostrate man into the fingers of his lifters, and like lines passing from their fingers into his body; the fulcral or basic force, causative to their emergence and efficiency as such, being the expansion of the air, compressed, not only within their lungs, but within every part of their organisms. The afferent and efferent air-tubelets, that intervene between the cutaneous and pulmonary air-cells, are under the control of the sensor and motor nerves; and, when a man wishes to exert his strength in a specific direction, he can close the cells opening in all other directions, as readily as he can close his mouth.

To drive a nail, a mechanic grasps the handle of his hammer. Lines of essential substance from his curved hand converge within it, while like lines from the rounded handle enter his hand divergently. When, at the limits of their convergence and divergence, the directions of these lines become reversed, they interlock. This is the *modus operandi* of prehension, which brings the substance of the man's hand into "rapport" with that of the tool.

He then draws a deep breath as he raises his arm; as it descends, his out-breathing forces into the nail, and into the wood it enters, like lines of essences from his lungs, through his arm, and hand, and hammer. It is no part of his soul-essences, as such, that is communicated, but the air condensed within his body, *a part of the soul of infinite being*. Man's agents, as also those of every other form, are constituted of the essences fruital to the infinitude of forms that make up the objective universe. These essences, whose different modes of moving, or qualities, are consequent upon their different mouldings *in transitu* through every parental sphere, as the nuclear and atmospheric rays fruital to their specific interforms, are under the control of man's will as regards assimilating plus quantities as agents to do his bidding, when emergencies demand *extra* efforts.

The expansive elasticity of the atmospheric gases he inspires so readily, when plus condensed, and pitted against the non-elastic liquids circulating within the mediately elastic vessels that make up his vascular organism, is a motive power, compared with which steam sinks into insignificance. To comprehend their inherent ability and practical efficiency, we must bear in mind that the agents of man's will, in their culminate capacity, are the psycho-physical powers, not only of his immediate commensal forms, whose essential germs are nutrient to his organs of general and special sense in the present, but those of the commensals of his every ancestral form, which were subjected by each as the especial nutriment of their organs of sense, and transmitted as the prime constituents of like organs of sense, within and *as* his psycho-physical organism.

4. When we reflect that the rays of empyreal sub-

stance, their nervo-vital fluids, are continuously out-flowing from each and all forms, and becoming continuously and reciprocally received, by all within their direct and reflex ranges of force, as needed nutriment, thereby transferring to, and impressing upon, each other their peculiar sentience, the modes of moving by their sentient media, we obtain a faint conception of the relations of things, and the *wherefore* of their ability to respond to each other's needs. This, because we perceive that it is the essences fruital to their empyreal or nervous elements respectively, that represent their essential qualities, their temperature and tangibility, their sapidity, their odorousness, their sonorousness, and their luminosity ; and that these are what become statically combined, pre-natally and post-natally, as the corresponding organs of perceptivity that make up the nervous system of each, each forming in accordance with the specific structure of its proximate parent-forms which determine its status of complexity. Sensibly-expressed forms are purely empyreal essences, statically combined ; hence their counter-conditioned or dynamic emanations are empyreal, those of each representing their peculiar qualities, *in their modes of moving*.

If, as assumed, the organ by which the sapid, or any other, essences of external bodies are abstracted, is built up of essences whose modes of moving, prior to their becoming statically combined as such, represented their sapidity, or any other quality, then the organ is functionally adapted to mould these essences into corresponding forms of moving, forms adapted to subsist upon, or cognize, like essences.

Hence we assume, that, in the origination of a sentient representative of the object sensed, within the

sensory ganglia of any organ of special sense, the essences priorly forced into it are instantly nucleated, thence instantly atmosphered by those that succeed them, the image being instantly endowed with the ability to sense the abstract quality which the latter essences represent in their modes of moving, *in virtue of being fruitful to its atmospheric elements.*

5. Now, admitting that our ability to recognize the object is in consequence of the perfect unisensual, or rhythmic, actions and re-actions of the essential germs of these organs of special sense, so that the qualities they severally abstract combine as concrete qualities, we perceive that their modes of moving are necessarily correlated, those statically combined as its interior representatives within the sensorium being miniature repetitions of those by whose modes of moving the object becomes sensibly expressed. That is, their functions, as *form* and as *essence*, are interchangeable, in the sense that those nucleated as form are adapted to become volatilized as atmospheric, and atmospheric essences are adapted to become nucleated as form. But, in becoming atmospheric, the nuclear essences attain the freedom to move necessary to express their priorly inherited complexity as regards directions.

As their volatility is due to having been atmosphered by essences correspondingly more motile, they inherit, in addition to their previously expressed complexity and motility, the greater motility and expressibility of the more comminuted essences, which become latent, as centrifugal clasticity, when *re-nucleated as form*. This condensation of their nutrient, or bodily, essences, subjected from consecutively higher altitudes, is provisional to their attainment to consecutively higher alti-

tudes, *in their organic capacity*, at each volatilization and re-embodiment.

The same principles are involved in every species of progress. The wherefore that bodies luminously radiant express, in direct order, the spectrum of colored rays, under increasing degrees of heat or centrifugal force, is because the same volatile essences are projected to consecutively freer altitudes, where, in their stratal capacity, they become atmosphered by more and more motile essences, whose increasingly rapid rotary glintings are, *per se*, more and more motile colors. In like manner, the mind, regardless of age, attains higher and higher light and maturity by reasoning, inductively and deductively, from the altitude, or plane, whence each higher truth is perceived. It is simply perception and reflection from higher standpoints, or freer axes of thought, regardless of all authority not corroborated by the sensible qualities of things, as revealed in the homologies and analogies of nature. This never-ceasing transposition of plus and minus mature germs from the higher and lower strata of every sphere, and of every interform of each, *is due to the never-ceasing persistence of substance, to move and to form in accordance with its spacial and timal conditions*. And as the sole process of formation consists in the aggregation of substance essentially atmospheric, or volatile, within a lesser area of space, thence of its enspherement by a quantitative equivalent of like, but less coalesced, essences, thence of their atomie combination as a system of nucleated spherules, or cellules, subsequently organized as an individual form, we claim that the objective universe is repeated (subjected), within the range of our sentient powers, by the same process, save

that the substance constituting its nuclear counterpart within the sensorium *corresponds, in its grade of refinement, with the incalculably lesser areas of space involved.*

That the ganglia of special sense, like those of respiration, mastication, deglutition, and locomotion, grow by the aggregation of actual substance, and project their vascular nerve-fibres, and their circulating media, to every part of the organism, as its need of additional counter-forcitive substance demands, is unquestioned.

The fact that every organic form, in supplying its needs from its incipiency, repeats the same modes of moving as its parent forms, within whose organisms the tendency of its specific elemental germs were moulded, is our license for assuming that these sentient media, that circulate with lightning speed through our organisms, repeat the same modes of moving as their parent forms, each being impelled to do what it does by its individual needs, *which supplies the needs of the organism that conditions its existence within it for this especial purpose.* This presupposes that the animals, the vegetables, the minerals, and gases that make up our world of forms are repeated in the human form, and that the modes of motion by each and all are effected through the interchange of their empyreal essences, as the needs of each demand, just as, in the outer world, whose nuclear organs of special and general sense *are, per se,* those of its nuclear organisms. The ability of the nuclear media within our organs of sense, special and general, to recognize conjointly the concrete qualities of the objects to which they are severally fruital as abstract qualities, is because they severally receive the

impress of the same modes of moving as those by which they became nucleated, all being temporarily thrown into their inherent modes of moving.

If the object be wanting in a special quality, or it be not sensibly expressed, the media receptive thereto are not stimulated to act.

But unless the essences constituting man's organs of special sense, which, compared with those of general sense, are on lower planes of maturity or mobility, correspond with the modes of moving by the representative essences of things, they are not cognized as special or abstract sensations. This is why less complex, but more mature, animals cognize abstract qualities utterly beyond the penetrability of human sense.

Their greater microscopic range is the basis of man's greater telescopic range. Not only so, but their greater instinctive or intuitional powers are prophetic of like powers by man's more complicated organs of special or abstract cognition, when *equally matured*.

For example, birds of passage, prompted by seasonal changes, which are always in accord with their generative powers, leave their lower winter latitudes, where there elemental ova are moulded, when spring returns, and return to their higher summer latitudes, where these ova become developed as their specific offspring. These soul-germs, in virtue of having been aggregated of the rarer and more motile essences indigenous to lower latitudes and higher altitudes, and matured as archetypal representatives of every soul-germ of the specific parent organisms, inherit all their native tendencies,—tendencies to return to their native latitudes and altitudes in a like *diffused* condition. That is, when these soul-germs, subsequent to their condensation and con-

jugal combination as "fertile" specific ova, become embodied by the denser and less motile essences indigenous to higher latitudes and lower altitudes, they are adapted to return to their native latitudes in their organic capacity, in virtue of the *expansibility* of their bodily essences.

Their ability to fly is commensurate with their ability to digest and assimilate the empyreal essences of mineral compounds, — the acme of expansibility.

Their ability to *feel* being equally acute, they are attracted back and forth to the same localities by the lines of direct essential force, which are continuously vibrating between localities impregnated by the same empyreal essences. When "messenger-birds" are taken from the localities where they have been reared, or have remained a length of time, and whose surroundings are impregnated with their essential germs, to other localities, those escaping along the route, however indirect, become living links of direct essential force between the former and those constituting their organisms. The same *feeling* is present between mutually beloved kindred or devoted friends, however widely separated, even by death; but, being less acute from immaturity, human feeling cannot localize the thither links of these subtle love-ties. *Feeling* is not only the most mature sense, but it is the *soul* of every special sense. Hence, like the feelers of the simplest animals, which are, typically, every organ of special sense, its presence, as the soul of sense in humanity, is prophetic of its expression on planes of complex sensation, as much more acute than man's present sentient powers as the latter are more complex than the feelers of these simplest animals. This general-sense feeling,

which pictures within the mind every objective quality of the absent, is, *per se*, a recognition of substance in form utterly beyond the range of special sense by *direct abstraction*, hence is positive proof of the existence of sublimating grades, whose ultimate minuteness is the correlative of its infinite extension. Now, by accepting the empyreal grade of substance revealed as heat, light, electricity, and magnetism, as the soul of form on our plane of sense-perception, and the increasingly more refined grades as the soul of form on planes of increasing complexity and maturity, we obtain a clew to the eternal "fitness of things," or rather to the endless correlations of essential substance as the soul and body of nature.

And by accepting the descending sap-currents of a tree, from their mouthlets on the under side of its leaves, or lungs, through its branches, its trunk, and its roots below their termination, as typical of the *pro-creative* function of sex; and accepting the ascending sap-currents, from their mouthlets at the termini of its roots, through their convergent, perpendicular, and divergent lines to the upper surface of its leaves, as typical of the *re-creative* function of sex,— we perceive, that, while they are functionally unitized by their terminal anastomoses, yet each currental system, like the veins and arteries in animal forms, is a *medium* between their counterpart sources of external nutriment. These supplementary functions are necessarily omnipresent.

6. The substance of each sentient agent, in virtue of the tendencies inherited by its sensible expression, as the representative image of its ancestral prototypes, *is of itself* adapted to so expand, that the diverging vibrations of the essences it radiates are *fac-similes* of those

it passed through in becoming focalized as form, but in reverse order.

We recognize our own face in a plane mirror by the same process. The rays of light which pass from it to the glass are reflected upon the cornea of the eye. The largest nuclei or atoms delineate its image thereon, while the lesser delineate a more concentrated image on the retina; the least delineating a still more concentrated image within the optic ganglia. Instantly the ganglionie image sees the erect corneal image through the inverted retinal image.

The perceptive agent on the embryonic plane of sentient life sees itself on the mature or atmospheric plane, which latter plane is intermediate between our embryonic or nuclear plane, and the nuclear condition of the perceptive agent on a higher or post-mortem plane of sentient life, when, at somatic death, the sum of our sentient agents becomes atmosphered or embodied by the agents of sensible expression on the higher plane; these, in turn, at a like change, becoming the nuclei or soul of a still higher embodiment, on and on, ever and forever.

When rays from a star are concentrated as the perceptive agent, their angle of incidence becomes reversed as its angle of reflection or vision. The nuclei of the lines of luminous spherules from the star decrease in axial rotation in the ratio those reflected from the eye increase, in accordance with the never-changing law of dynamic equilibrium. We anticipate the question, "How can the rays of light from a lifeless body become a living, sentient image within the optic ganglia? It is in virtue of the *intrinsic vitality of essential substance, and the modes of motion* its nucleations inherit from

their spacial and timal conditions, but for which there could be no such thing as living, sentient beings. That human beings are such, is our guarantee that they have become such in virtue of the elasticity and homogeneity of their essential substance, which is the essentia! fruitage of every form of life and sentience, pertaining to our plane of sensible expression. The sentient *ego*—the sum of each man's sensations unitized—sees its face reflected from the face of nature, in lines of light corresponding with the refinement, and complexity or maturement, of his metaphysical organism,—the sum of his ideal images. As lines of light are *incidental* or *reflected* only as regards the standpoint whence they are seen or idealized, they are necessarily *one* in the sense of being dynamically equipoised as correlative forces; those from the plane of sensc-perception being incidental as regards perceptivity, but reflected as regards the mind's ability to extend its subjective powers so as to idealize its objective prototypes from the prototypal plane,—the plane of sensible expression. In doing this, the culminate *ego* sees its subjective universe—*itself*, as the sum of its cognitions—from the objective plane, in virtue of the ideal lines of light *reflected therefrom*. In seeing its concepitive creations from this outer plane, the sentient *ego* sees itself in the light of its own colorings, not as others see them, but in the sense that the visual powers of the outer eye are just what the light projected from this subjective universe, combined with the light projected from the objective universe, abstracted as nutriment, was adapted to construct, the outer eye being the telescopic instrument through which the light and life of the outer universe become the living visual agents of the inner universc. That the

qualities of objects are to each mind what each mind conceives them to be, is a known truth,—a self-revealed fact.

7. The process of communication between the object seen, and its ideal or image within the optic ganglia through the outer eye,—the latter's refracting telescope,—is identical in principle with that of telegraphy, there being in either case both direct and reflex currents from and toward both ends of the line. This substitutive process is clearly illustrated in the transmission of the essential force of the sun's direct and reflex rays toward and from its peripheral limits, by means of the axial rotation of its atmospheric nuclei, or planets, as culminations of the axial rotations of their atmospheric spherular nuclei. While one equivalent of the sun's negative rays, that which impinges upon the sunward hemisphere of the planets and that of their spherular nuclei, by combination with the rarer essences of higher altitudes, ascends thitherward from their anti-sunward hemispheres, the other equivalent, by combination with denser essences, is returned to the sun from their sunward hemispheres.

The fact that the mechanical powers of the eye are the same in principle, but intermediate in range between the magnifying powers of the telescope and microscope, by means of which man visualizes forms of life whose substance is comminuted and coalesced beyond the range of unaided vision, thereby proving the existence of such planes of life, reveals the *wherfore* that its functions, as the medium of vision between the outer universe and its intertype within the mind, are limited to our existence on our present plane of objectivity.

And as the sonorous, the luminous, the odorous, the sapid, and thermal properties of like super-sensuous

forms, can be and are rendered cognizable by the organ of special sense (whose mechanical powers repeat reversely the modes of motion by their representative essences respectively), *through abnormal concentration*, we perceive their unadaptability to higher planes of sensible expression, thence perceive the necessity of organs aggregated of the same grade of empyreal substance. The additional fact that the interblendings of the motive powers of special or abstract sense, all of which are correlated and unitized in virtue of their reciprocal relations with general sense, by means of whose directive soul-powers their abstractions become consensually concreted as individual ideals, proves that the omnisensual *ego* they constitute is all there is of man's organic life.

Hence, we accept the fact that the ideals of each sense *survive* the utter destruction or death of the organ through which its abstract sensations were transmitted during its somatic life, all of which retain their sentient vitality as a *part* of the remembered conscious knowledge of man, as positive proof of the continued conscious existence of *all* man's ideals in their concrete or organic capacity as the culminate *ego*, *when, at somatic death, all these mechanical instruments cease to transmit the agents of sense-perception and of sensible expression, that constituted their seeming organic vitality.*

8. Organic life is what is effected by essential substance, in virtue of its counter-sexual or counter-spacial conditions. These conditions being without beginning or ending, it is never otherwise than organically alive, in the sense of being eternally in *dynamic equilibrium*, regardless of its formations and transformations. The substance of all organisms of both sexes is equally

female, or nuclear, and male, or atmospheric, the former being on the embryonic or perceptive plane, while the latter is on the mature or perceptible plane. Or, in other words, each nuclear organism, up to its status of complexity, is an ovum of the universe, whose outgrowth to the atmospheric or perceptible plane necessitates the ingrowth of the atmospheric ova, or essential qualities, of its every commensal, in the broadest sense of congeneric gestation. Each sentient agent abstracts from the representative images of things, and responds to the representative of that which it priorly was, ever and forever, whether its responses be or be not consciously recognized by the culminate *ego*. The inseparable relations between parentage and offspring-age, or between organisms plus and minus mature, are revealed in the functions of their circulating media, which in absorbing their counter-mature nutrient essences, and parturiating their fruital essences, *transmit them from points where they are ex-nutrient, and unneeded, to points where they are needed as nutriment*. This process, by which the essences excreted by more mature forms of substance are continuously becoming the substance of less mature forms, is universal, and is inseparably correlated with the process by which the soul-germs of forms matured within our present world, become re-embodied within a post-mortem or future world. It is through this process of transmission that essential substance becomes the *soul* and the *body* of the universe. Viewed in this light, although the forms and motions of substance, in its solid, liquid, aerial, and super-aerial states, are *absolute* modifications of its empyreal elasticity under different spacial conditions, yet, to the conscious *ego*, or me, of the sentient beings that cog-

nize them, they are purely ideal or symbolic. That is, the essential germs of form that sensibly express these modifications or qualities, become concentrated as miniature likenesses of what they idealize or signify, within the range of their powers of sense-perception. The must-be-so of this is apparent, when we reflect that the subjective universe, the *myself* of each sentient being, is purely ideal in the sense that it is self-recognized as being contradistinctly opposed to, and at the same time inseparably correlated with, the forms and motions that symbolize the qualities of the objective universe, the *not me*. The essential representatives of the *not me*, in becoming the *me*, are, as ever, the *self-conditioned ESSENCE of being and doing*.

9. The process is less mysterious, if we but bear in mind that the mechanical powers of its various species of structure are inseparably interlinked by commensal gestation within the organism of nature, as are those of the interforms constituting our organisms; and that the female parent of each is a *mediate matrice*, between the plus maturity and minus complexity of the male parent, and the minus maturity and plus complexity of their common offspring. From the known weight and fluidity of our atmosphere, we perceive that substance thus conditioned must inevitably concentrate in solid and liquid forms. And, from the known spherical form of gravity, we are forced to recognize the earth's superficial momentum as a combination of the weight of its atmosphere with a co-equivalent of upward pressure diverging from its surface. And from the known elasticity of essential substance, and the known interchange between that constituting the earth and that constituting its atmosphere, which is continuously forced

from each into the other with plus and minus force, within their sunward and anti-sunward hemispheres, we recognize the alternate condensation and re-expansion of the substance thus exchanged as the identical counter-forces involved in their axial rotation, and recognize the repetition of this process of interchange between the nuclear and atmospheric organisms of each sphere of gravity, or form of force, as the structural propensities of each.

Hence, in studying the motive powers of objective forms, we must bear in mind that those of each are pitted against, and responsive to, the co-equivalent motive powers of their invisible atmospheres.

Now, taking it as granted that the human organism is a culmination of all forms below its status of complexity, its incipiency as such necessarily antedates that of every other. This, because it is the origin of the *mechanical powers* involved in its structure in the present, that we are to trace in its consequitively higher culminate representatives, not the *structure* of their more and more complex embodiments. Principles being eternal in their efficiency, we must regard the lines of essential substance, converging and diverging toward and from the centre of infinite gravity in their deflections toward and from the centre of terrestrial gravity, as the prime counter-bases of our world of forms. But we must discriminate between their embryonic condition, as the prime procreative and recreative, or positive and negative, principles of archetypal forms, and their matured or modified condition, as the male and female principles manifest as the statics and dynamics of terrestrial forms in the present. As is readily seen, the empyreal elements of the earth-sphere are continuously

being generated; the essences of the sun's direct or luminous rays being the bases, and those of its reflex rays, atmosphered by *extra* solar essences, their superbases; while those of its interforms are generated by the combination of the essences received through their cutaneous pores, and those received through the pores of their gills, lungs, and other internal integuments. The fact that these essences are brought together from opposite directions, and their elasticity so modified, during their transition to their points of meeting within these organisms, that they combine as comparatively static elements, is ample proof that the process is but a continuation of that by which the lines of essential substance, converging toward and diverging from the centre of infinite gravity, are so modified that they combine in every form of force necessary to the evolution of consecutively less spacial, or less mature, but more complex interspheres. These counter-tending lines of essential force condition the operation of every species of machinery, as well as the functions of animate forms.

10. The inference by leading physiologists that the spermatozoa, developed within the sperm-cells of male animals, cannot be regarded as having any more independent vitality than blood-corpuscles or epithelium cells, is correct, from the fact that *all alike are individual animalcules*; the latter, which are functionally vegetative, being as independently vital as the most complex forms. They are also correct in assuming that their movements closely resemble those of similar forms developed within the sperm-cells of flowering and non-flowering plants, for the reason that vegetable vitality is the simple and combined modes of moving by the animalcules that constitute the living and life-giving

pabula, developed within their specific germ-cells and sperm-eells, in like manner as the vitality of a coral-tree is the motivities of its self-developing animaleules; the vaseularity of the tree, as a whole, being the sum of their self-construeted habitations, or external skeletons.

But despite their justly merited eminenee as sucessful investigators, and their striet adherence to the truths revealed through the faets diseovered, for which the world will ever be indebted, we beg leave to dissent from the inferenee that spermatozoa are not distinct beings, and not varied to eorrespond with the zoölogical relations of the animals within whieh they are developed; and also to dissent from the popular opinion that vegetable forms are destitute of a nervous system.

There can be no question as to their independent life and sense on the ground of their minuteity, inasmuch as there are myriads of living forms possessing the various organs adapted to maintain life, and to reproduce their essential and speefie germs, in a single drop of water. The individuation of every form, whether regarded as mineral, vegetable, animal, or gaseous, is effected by the regular gradations of erystallization, vegetation, animalization, and gasefication. The external manifestations of life, of sense, and of conseiousness of externality, increase in the ratio of the lessening predominance of these conseeutively lower transformations. Life is necessarily a unity and a continuity. There can be no leaps in the order of outgrowth through ingrowth.

To beeome eontradistinetly motile, every atom of each form, the substanee of all alike being primarily gaseous, must pass through this series of lessening, thence of inereasing, spaeiality, in order to subjeet inversely and

conversely, *seriatim*, the different modes of moving in each kingdom of form.

Each kingdom, like each of its individuations, reproduces its essential and its specific fruitage, the former being the representative of its prime gaseous condition, individuated as its atmospheric organism on the post-mortem plane, inherent in which is the adaptability to re-ascend, as an *individuated form*, to the same altitudes whence its essential substance descended.

It would undoubtedly be a great saving of brain-work to accept the popular theory, that every department of universal formation was spoken into existence, and its functions subsequently conducted by an external creative power. But the fact that things *grow*, all alike growing from non-objectivity, across the plane of sense-perception, in virtue of assimilating substance in opposite spacial and motorial conditions, thence the departure of their organic vitality into non-objectivity, is a self-evident contradiction of all such assumptions. And, to the true student of nature, what pleasure can exceed that of finding irrefutable evidence that sentience is immanent in, and pertains to, the organic vitality of the non-objective agents that construct the objective form, as a mould for their motive powers, during their organic outgrowth into a higher plane of sense-perception?

The fact that the motions of all forms, from their incipiency, are in the direction whence their nutrient substance is supplied, is all-sufficient evidence that they *feel* the need. And their passiveness, when the substance sought is assimilated, is equal evidence that the satiation is *felt*. The *expression* of feeling proves the presence of volitional agents, whether or not their channels, or conducting vessels, are within the range

of artificially aided vision. Motion is the expression of organic life, for the reason it involves an organized system of circulation. It matters not whether we term the "behavior" of the substance involved crystallic, vegetative, animative, or affinitive, it is either a necessary step in its progress downward toward incipiency on a more *complex plane* of life, or upward toward a more *mature plane*. We have often toyed with a vine at our window, by placing a pen-stock on the palm of an open tendril. Directly it came in contact with its villi, the tendril would begin to close around it as a *recognized support*. On removing the pen-stock, it would continue to coil for a time; then, as if it ceased to *feel* the supposed support, it would uncoil fully. Again we would present the stock, and again it would coil around it, and uncoil when it was removed. Never tiring of our tantalizing experiments, it would grasp anything *tangible*, when placed within its reach.

We have tested the instinct of winged seeds, by placing them upon different substances. Placed on dry paper, they acted repulsively, rising up, as if voluntarily. But, placed on a soft, moist surface, they immediately assumed a perpendicular position, and, by suction through an exchange of counter-tending empyreal fluids, sank to a depth sufficient to afford the conditions necessary to germination. As we fail to find any line of demarcation, as regards sentient volition, between the acts of these vegetable forms, and myriads of others equally striking, and those of a human infant when first brought in contact with the source of its prime post-natal nutriment, we assume, without discrimination, that the normal movements of each and every form are the tendencies of the essences that have be-

come equipoised, or statically correlated, as the *substance* of each, which tendencies *are, per se, the spacial and timal conditions under whose modifications these essences became individuated as said forms.* Hence we assume, correlatively, that the *why* of their evolution is revealed in the functions of each as an organ of nature's organism; that the *how* is revealed in the tendencies each transmits; and the *wherefore*, in the correlative powers of each, as an individual form of force.

Although the uses of things is self-evidence of their needed efficiency, and of the *why* and *wherefore* of their culminate and individual existence, yet the *how* they become existent is revealed only through a comprehension of the laws causative to their development. All we know, or can know, of any thing, is its qualities, whose differences are known to be but different modifications of their substance, which determine their structural proclivities.

All answers as to how any quality is developed, hinge upon the *how* of these modifications. If one cubic foot of homogeneous air be condensed to one-fourth of a cubic foot, and another foot of like air be expanded to four cubic feet, their incasements being of equal weight, the former will descend, and the latter ascend, with equal rapidity; and, if liberated at the same moment, they will return to their specific altitude at the same moment, with equal degrees of force, their spacial and timal conditions being, *pro tempore*, counterpart qualities.

These different qualities are not "created." They are purely modifications of the inherited tendencies of the air, as the offspring of like gaseous compounds, counter-spacially conditioned, in virtue of the intrinsic

elasticity of its substance. Now, we assume as a perfect parallelism that it is simply the modification of the tendencies inherited by the elemental germs of external forms, whose modes of motion represent their essential qualities when inborn within the organs of sense, that transforms them into sentient agents, capacitated to cognize all the modes of motion to which they have been subjected.

11. The fact that vegetable forms are less deeply rooted in the order of their increasing complexity, fruit-bearing vines being the most complex, and non-flowering plants and trees the least complex and most deeply rooted, is a clew as to *how* forms become discreted as self-moving individualities. For example, each tree is a sphere of gravity. Its roots represent the direction of the earth-sphere's centre-tending rays inverted as ingrowth, and its branches that of the ex-centre-tending rays of outgrowth. If, as assumed, the emanations from the earth's surface-forms in the past are the bases of like forms on the periphery of each more outer stratification, to which like emanations in the present are basically nutrient, their super-bases and super-basic nutriment being super-terrestrial, the divergence of the roots and branches of vegetables necessarily accord with the decrease and increase of space toward and from the centre of its spherical form. That is, their roots are less spacial than their branches, like the pulmonary and systemic blood-vessels as a whole. As license for our assumption that their increase in complexity is in the ratio of decrease in the spaciality of their rootings compared with that of their branchings, we present the well-known fact that the functions of the roots and branches of vines are interchangeable. That is, a branch buried in

the soil becomes a root, and a root elevated in the air becomes a branch; each growing, *by essential transformation*, the organs needed in their changed conditions.

This is in virtue of the homogeneity of the essences absorbed by the roots and branches, their difference in quality being differences in their spacial and timal conditions. Their solid tissues and circulating liquids being intermediate in density between their earthy and aerial nutriment, the pores of the buried branch contract, in the degree those of the elevated root expand. Their motor and sensor nerves — lines of condensed atmospheric essences — are the soul-powers, by which, and through which, the needed change is *perceived and effected*. This conformation to conditions is universal, in the sense that every thing is outgrowing into higher, by growing up through the lower, from the very lowest, conditions, thereby *acquiring* every mode of moving involved in each, *seriatim*.

In virtue of the anastomoses between their descending and ascending sap-currents at their innumerable termini, which, like every other form of substance, are essentially empyreal, each vegetable form, as also every animal, mineral, and gaseous form, is capacitated to project roots and branches in every direction in which their need of basic and super-basic nutriment prompts them to move. The promptings of hunger are simply the projection of the latent essences of forms toward points of lessening pressure, which are always in the direction of the counter-spacial nutrient essences needed to fulcrate their movements in *these directions*. For example, the essences of downward or inward currents are forced onward by super-pressure, including their own weight, being thereby forced into combination with like essences

of ever-increasing density, staticized as the vascular fulera of the form, until their united resistance exceeds the insistent force of the convergent or male currents, from which points of reversion they become divergent or female currents; the sub-pressure basic thereto being, as in all other cases, a *reflection* of the super-pressure. The more outer essences of all currents, being retarded by friction with those surrounding them, become staticized therewith, as the vascular boundaries of the more and more inner and swifter-flowing essences. Although we may never obtain a clear conception of the prime initial super-forcee and sub-forcee, by means of which essential substance has become expressed as the entirety of formation, yet from what is revealed in the expansive force of the atmospheric gases, condensed within the auricles of the more outer and more inner heart of the human organism, we can conceive, that, if like essences were condensed within corresponding organs near the earth's centre, they would expand correspondingly at their ultimate of concentration, as the basic forcee causative to its axial rotation, and the ex-ecentration of its eirculating fluids to its atmospheric boundaries, whence they would be forced back by super-pressure as centre-tending currents. Now, taking it as granted that the earth-sphere's discretion from eo-rotivity with the sun was effected through the discretion of its own interforms from eo-rotivity with the earth, we will trace this diseretive process from its simplest manifestations in the vegetable kingdom.

Although the movement of glaeiers, and the formation and insulation of crystals, prove the efficiency, as well as the presence, of discrete currental systems in the mineral kingdom, yet, aside from the untraceable organs

by whose functions the flowers and fruits of the more complex vegetables are discreted, we find in the tendrils of vines the first trace of discretion in mature forms. Tendrils are actual roots, in the sense that the essences they absorb, from the solids to which they cling in their efforts toward erection, are minus spacial, or basically nutrient, compared with the atmospheric essences absorbed by their leaves. Vine-tendrils correspond with the cilia-feet of myriapoda.

Although the basic germ of every vegetable is a self-motile animalecule, like the polyps basic to the development of mineral vegetation, yet all alike are non-locomotive as such. The ability of our planet-sphere to project basic organs above its nuclear surface through its vegetable forms, was provisional to its ability to project locomotive and prehensile organs through its animal forms. This ability was the concentration of atmospheric gases within more and more internal organs, whose expansion, under the directive tendency of these internal fulera, conditioned the movement of these external appendages in such directions as its needs demanded. As it gradually outgrows its lower stratum of existence, the tadpole attains a higher, by concentrating, as more *internal respiratory organs*, like atmospheric essences as those constituting its gills. This transference of their whilom nutriment results in the starvation and segregation of its gills, in the degree its lungs become aggregated, so that it can subsist within either the aqueous or the aerial stratum; while the transference of those nutrient to its caudal appendage, as the nutrient essences of its organs of locomotion, results in the utter segregation or starvation of the former.

12. This partial or entire transference of the nutriti-

ent essences of its interforms, and the modification of their forces by eonecentration and ex-eentration as their needs demand, are, *per se*, the laws of nature, — the eternal seale of justiee between the need of aggregation and the equal need of segregation.

The need of embodying and disembodying its essentially dynamic interforms within more and more spaeial strata, is, *per se*, nature's need of their more and more motile effieieney. This necessitates the efficiency of like interforms, within more and more interior or less spacial strata, as their basie counterparts, or offspring, on less and less mature planes. Nature's progress in complexity and facility of movements, is self-eonditioned, hence is *absolutely* without beginning or ending.

The fact that the basie germs of animal, mineral, and vegetable growths, are not dead, or even inorganie, matter, but distinct, self-motile, animate germs, whieh become embodied as fulera, provisional to more and more mobile expressions through more and more eomplex embodiments, *is a key to the mysteries of evolution*. Leaving the elearly traceable steps by whieh animals of increasing complexity beeome disereted and self-motile, we will study the mechanieal powers involved in their culmination in the human organism.

In the first place, the pulmonary system of eirculation, including its nerves, lymphaties, and air-vessels, represents functionally the roots of vegetables, which in turn represent the functions of the sun's rays within the earth-sphere's sunward hemisphere; these in turn representing the funetions of like rays within the solar sphere's sunward hemisphere, so on, within each more embracing sphere. Now, bearing in mind that the earth-sphere, although self-motile in the present, is a fixture

within its channel of eirculation as regards the relative position of its ventral and dorsal hemispheres, and the funetions of the sun's direet and reflex rays therein, we perceive that these rays are actually introverted and extroverted, from and to the periphery of its atmosphere, as its *internal and external organs of respiration*. That is, they are to the earth-sphere what the pulmonary and systemic systems of eirculation are to the human organism in its spherical entirety; the counter-eurrents in the human organism being correlated with the alternations of plus and minus pressure by the earth-sphere's direet and reflex rays, as are those of the earth-sphere by the alternate plus and minus pressure of the solar sphere's counter-tending rays.

Hence our assumption, that the kidneys and lungs of humans are the basic counterparts of their posterior and anterior limbs; and that the points on the neuro-skeleton, whence they sprout, correspond with the earth-sphere's solstitial counterpoints of alternate plus and minus super-pressure. Their respective funetions include every form of posterior propulsion, and anterior prehension, by earlier and less complex animals.

13. The fact that external appendages in the animal series decrease in the ratio the bearings of the lesser number increase, is our license for assuming that the more numerous and more mature, but less complex, animals are lessening in number, in the ratio the less numerous and less mature animals are increasing in complexity.

There is ample evidence of this ripening process in the actual progress in refinement and complexity in the gaseous, the mineral, the vegetable, and animal kingdoms, whose fruital essences are the common pabula of

our world of forms. This is evidence that man, as the culminate species, is outgrowing into such conditions that his organism will require the atmospheric or ripened fruitage of his commensals, instead of the elements *in ovo* that constitute their bodily forms. The progress of our world consists in the involution of all the mechanical powers of each earlier species as those of each later species. This is effected by their commensal gestation. Earlier species are the prey, or basic nutrient, of later species *seriatim*; the essential fruitage of their resurrected ancestors, within higher strata, being the super-basic mechanical force involved. The increasing refinement and complexity of movements by the interforms of our world are sensible expressions of the refinement and complexity of its parent worlds, nuclear and atmospheric, because combinations of the counter-mature or counter-sexual essential germs of their interforms. As the necessarily equal progress of these minus and plus mature, or female and male, germs, is, *per se*, the progress of our world's lessening number of species, we perceive the necessity of a continuous increase in the maturity of their basic or bodily food; thence perceive that the human species will gradually cease to live upon the less mature constituent germs of vegetables and animals; and that man's loathing to destroy living organisms from increasing refinement in taste, and correspondingly higher moral and religious perceptions, will be commensurate with his increasing need of, and desire to feast upon, their mature fruits, and other products, all of which are thought-germs *in embryo*. This because the fruitage of vegetables, whether branched or rootal, nuclear or atmospheric, and the milk of animals, are basically fruital to the uni-

verse of elemental germs involved in their respective organisms, *re-organized on the mature plane*, — our plane or sensible expression, — as the essential representatives of the external forms to which they are fruital; like, but later-evolved, elemental germs of external forms being super-basic. As these basic germs were indispensable to the evolution of mammals, and fruit-bearing vegetables, the destruction of organic life below this plane was, and still is, an inevitable necessity.

And these seeming aggressions must continue, until the mechanical powers of all species provisional thereto shall be so represented in the functions of the mutually self-sustaining species, that their common fruitage will be a repetition of the entire elemental germs *in ovo*, indigenous to our common strata of subsistence.

CHAPTER XII.

1. No conception of the origin of its different species can be obtained, only as we perceive that our world of forms is intermediate between, and a combination of, the counter-conditioned essences of the nuclear and atmospheric elements constituent to its parent worlds, and that the spacial and timal conditions of present forms are repetitions of those of their specific representatives *in these past worlds*, when they were the earth's surface stratifications.

But this perception must include the perception that our world of forms is a complication of their mechanical powers, inter-repeated as an *additional* system of circulation within the terrestrial organism, in like manner as is the sanguiferous system within the organisms of its air-breathing animals, which is a combination of the essential germs of the nerves and lymphatics by which its every vessel is attended, and which, in outgrowing, extends its trunks, roots, and branches correlative with those of the chylo-lymphatic and nervous systems, primarily the lower and higher layers of the germinal membrane, between which the middle, or sanguiferous, layer is developed. Although the roots and branches of the different circulating systems in animal forms are thus inextricably interlinked, yet each vessel has its

definite boundaries, while the trunks of each, with their nuclei of centrifugal force, retain intact their relative positions. And although these boundaries are impassable by their respective media, until ripened within a less complex system, yet their transition into one more complex, when thus fitted to subsist upon its essences, is continuous. In virtue of their common origin, each becomes incipient, and is thenceforth nourished by the common essences of these different systems, through whose boundaries they are continuously passing, by endosmose and exosmose.

By regarding the systems of circulation that make up our organisms as inter-repetitions of those that make up our world's different strata of forms, regarding the latter in turn as one of the unitized strata or stratifications whose unitized inter-currents make up the organism of our sphere, we can readily trace the correlations between the functions of the former, and by inference between those of the world they constitute and those of the entire terrestrial sphere.

First, in like manner as the different corpuscles, within the thoracic duct of air-breathing animals, ascend unanalyzed into the sanguiferous or aerialized system, so different species of animal forms, individuated within the aqueous stratum, ascend unanalyzed into the aerial stratum.

Again, the fact that the essences that make up the "representative image," or concrete qualities of objects, are inborn within animal forms through their nerves of general and special sense, which essential representatives, in becoming additional to their sentience, become sentient *per se* on new planes of sense-perception, licenses the assumption, that, when the sum of their re-

pective agents of sense, or essential soul-germs, are outborn from their nuclear moulds at somatic death, they become sentient *per se* on new planes of sense-perception, by becoming *re-embodied by sensibly expressed essences indigenous thereto*.

This is readily idealized, if we but bear in mind that organic growth is purely essential; that every element of growth, each of which is an ultimate ideal or soul-germ, embodied by its own subjected essences on the ovum plane, which must needs become abstracted therefrom, before it can become inborn or outborn within or from the nerves of general and special sense, that guard the portals of the chylo-lymphatic, the sanguiferous, the bronchial or aerial, and the cranial or super-aerial systems. The corpuseles developed within these different systems, like the forms developed within our different strata of subsistence, are on different planes of sense-perception, all alike growing up through these consecutively more complex and inseparably interlinked planes of maturity, by exchanging the essential substance by which they are embodied on each lower plane for like substance absorbed from a higher; while the less and less mature germs that culminate as their embodiments, and which, at somatic death, descend to the incipient or lowest plane, continuously substitute the lower conditions of the inseparably organized soul-germs, during their ascent as the culminate *ego* of each to the highest. Our strata of different nutrient fluids, like our constituent systems of different fluids, are simply the sum of the elements that constitute them; hence the more and more complex forms they become within each, outgrow by the same gestative process. Even the structural changes, in those outgrowing from the aque-

ous into the aerial stratum, are effected by essential transformation. Hence we must study the modes of moving by their ultimate constituents as their essential qualities, the sum of which is their specific structural proclivities.

However inextricably intermixed in their structural and currental combinations and co-operations, the intrinsic elasticity of every elemental spherule is determined by its spacial conditions, all of which are inherent as its structural proclivities, latent or active, in accordance with its freedom to move as it has *priorly moved*. In recognizing the contents of our different currental systems as intertypes of the entities indigenous to the different strata of our world, we perceive that those of each stratum, like those of each system, must be counter-elastic or counter-sexual as root-currents, and also as branch-currents. For example, the contents of the thoracic duct are atmospheric compared with the contents of the alimentary canal, in like manner as perfected or imago insects are atmospheric compared with their aquatic larvæ. And as we find the roots and the branches of the venous and arterial system counter-sexual, we assume that the roots and branches of the lymphatics and nerves that attend them are counter-sexual, and also assume that there are root and branch currents of meteoric water and of super-aerial fluids. In perceiving that the aerial stratum is a compound of all preceding strata, and that its intertype, the sanguiferous system of its animal forms, is a compound of all preceding systems, we recognize the three coats of the blood-vessels as intertypes of the aqueous, the aerial, and super-aerial strata; thence recognize the blood-corpuscles, which are built up of the elemental germs

fruitful to the earth's atmosphere, and remoulded *in transitu* through these coats, as intertypes of the animal forms on and below the earth's surface, all of which are built up of the elemental germs moulded *in transitu* through the prototypal strata.

Hence, in recognizing the aerial stratum as dual, or counter-sexual, we perceive that the lower half is the atmospheric department of the aqueo-earthy stratum, while the upper half is the nuclear department of the super-aerial stratum, the altitude at which nitrogen predominates, which is of necessity a definite circle of specific gravity, being the line of demarcation between these halves, the roots and branches of the aerial stratum.

This is readily perceived when we reflect that the nuclear and atmospheric department of each and every form of force are, *per se*, the roots and branches of its ultimate inter-currents, the force of whose fluids must of necessity be equal and opposite.

But, unless the theory of arbitrary creation is ignored *in toto*, we cannot perceive that the elasticity of essential substance, under its own counter-pressure within its own spherical form as a whole, is, *per se*, the essential germetic and nutrient vitality of the forms it becomes. As the numerical increase in the outward structural bearings of these inter-spherical forms is of necessity in the order of their repetition as the more and more interior fulcra of the more and more outer prototypes, the functional proclivities of each and all are determined by the *internal bearings* of the outermost spherical form to which they are constituent. As the inward bearings, or centripetal pressure of the latter, represent the sum of the outward bearings,

or centrifugal pressure of the former, *reflected inwards*, which, in turn, become *re-reflected outwards*, thus on continuously, we at once perceive, that, although these reciprocal actions and re-actions between counter spherically positioned essences are purely automatic or mechanical, abstractly considered, they are, at the same time, in their concrete capacity, as their essential constituents, the agents of sense and motion within the forms they become.

2. If essential substance is a law unto itself, in the sense of continuously doing that which the conditions of the culminate form it constitutes predetermine, there is, and can be, no line of demarcation between cause and effect. The spaces and times involved in its organization being, *per se*, its forms and motions, it is self-created *in being self-conditioned*.

The same is necessarily true of its every interform, down to its ultimate elements. These latter perceptions are indispensable to a clear understanding of the roots and branches of the essential currents within our sphere of gravity.

As a whole, the essential rays out-tending from its sunward hemisphere, which act and re-act reciprocally with the sun's direct rays, are its prime root-currents; while those out-tending from its anti-sunward hemisphere, which act and re-act reciprocally with the sun's reflex rays, are its prime branch-currents. Both of these extend to its bilateral limits. Again, it must be understood that substance of greater specific gravity than the atmosphere can no more be projected into, and sustained in it, through organic outgrowth, without a co-equivalent of fulcral force, than it can through machinery.

The process of self-fulcration has been discovered, through the aid of the microscope, in the growing of semi-transparent vegetables. The sap-corpuscles are seen to ascend to definite heights, within definite sections; thence, as if satiated by absorbing their needed nutriment from the atmosphere around it, they descend, during which rotative process the section not only enlarges in every direction, but, in virtue of the ascent of like corpuscles from the section below, new sections sprout out vertically and bilaterally, in accordance with the typal structure of the plant, the position of its elemental germs *in ovo* within the constituent elements of the parent plant.

This circulating process, which is of necessity universal, is continuously maintained by the ascent of the essences ripened within lower sections into the next higher, and the descent of the embryo essences of the higher into the lower.

Now, we assume, for reasons at once obvious, that these sections are inseparably paired, in the sense that the sprouting of the root-section is contemporary with the sprouting of its branch-section, in like manner as the sprouting of the roots and branches of the embryo plant is simultaneous; thence assume that their common offspring, other dual sections, become developed between them, and also between the root-sections and branch-sections of the latter; so on, to the completion of its structure.

This process of growth by the interposition of new cells, new sections, and new layers or strata, between two similar cells or sections or layers or strata, as the case may be, is fully substantiated; hence our assumption, that, when the aerial stratum of our stratification of

the terrestrial organism became incipient, a like stratum became incipient between the nuclear and atmospheric departments, or the roots and branches of the aqueo-earthly stratum of its past and prior-past stratifications, when somatically separated.

And that there was, at the same time, not only a like intergrowth between the roots and branches of all their conjugated cells, then present, past, and future, as regards *our now*, but like strata became interposed between the root-currents and branch-currents of all the stratifications of every more exterior and more interior sphere; and also an intertypal stratum, or system of currental fluids, between the pre-existing currental systems of their respective interforms, in accordance with their specific maturation, or spherical status. In a word, we assume that the roots and branches of the different stratal compounds, or currental systems, in the terrestrial organism, and, by parity of reasoning, in those of the universal organism, are correlated nutritively and fruitfully by anastomosis, and by endosmosis and exosmosis, like those of our organisms, by means of which all nature is outgrowing simultaneously in every department, the expansive elasticity of the essential substance, forcitively condensed therein by the weight of its primordial atmosphere, being the outgrowing force involved. In corroboration of our assumption that there is a definite line of demarcation between the root-currents and branch-currents, or nuclear and atmospheric departments, of the system of compounds in which nitrogen predominates, and that, at a definite time in the future, they will become somatically separated by the development of a new compound stratum between them, we present the fact that the earth's

aqueo-earthly surface is the dividing line between the nuclear, or aqueous and atmospheric, departments of the system of compounds predominantly oxygenic; while there is ample evidence that the earth's surface, during the carboniferous era, was the dividing line between the root-currents and branch-currents of the system of compounds predominantly carbonic. In addition, the atmosphere, as well as the nuclear, department of rainbows and mirages are often seen.

This is positive proof that the rays of light involved are reflected at equal angles from the upper and lower surfaces of a transparent medium, by whose photospheric rays they are deflected, prior to their being refracted by the falling raindrops, or vapors, on which the two forms are delineated. The lower portion of the mirage of a ship is formed in reverse position on the cloud or haze in the air above it, by the rays reflected from the real ship, which fall upon the water on which it rests at certain angles. These rays, on being reflected vertically from the water, fall upon, and are re-reflected from, the under surface of this aerial medium at corresponding angles.

The upper portion of the mirage is formed by the rays of light from the inverted image, which, in passing through this medium, are reflected from its upper surface, or rather are refracted by its photospheric rays at corresponding angles, thereby delineate an erect image, in like manner as the rays from the real ship, that in passing into the water are refracted by its surface-rays to corresponding positions, thereby delineating a reverse image in the water beneath it. It is the same process as that by which we see our own image *face to face* in a common mirror. The wherefore of the reversion of the

spectra of colors in the two rainbows is because rays of light projected to different distances from a refracting medium or reflecting surface are *per se* different colors from differences in freedom to express their inherent elasticity. Not only are the prime colors red, yellow, and blue, with their interblendings, expressed in the order of their increase in refrangibility from a mediate distance between the rainbows,—the assumed position of the comparatively static surface membrane between the denser and rarer halves of the aerial stratum,—but reverse *mirage images* are delineated by like prolongations of the direct and reflex rays that delineate every shade of light on the real object. In our ideal of the nature and function of this refracting membrane, it is an equilibrium between the upward and downward pressure of the counter-tending rays of aerial fluids, where in crossing from the denser root-currents into the rarer branch-currents, and *vice versa*, they project bilateral rays, which, in turn, project vertical and inverted rays, the process being identical with the formation of the photospheric rays on the interlacing fibre-currents that insulate every other *form* of substance.

Although the tropical belts of comparatively calm air and water, which express the equivalence of force between the greater and lesser velocity of the earth's superficies between and beyond them, or the equatorial belt which expresses the equivalence of force between the counter-currents of air and water in its polar hemispheres, are as destitute of solidity as the boundaries of its ocean-currents, yet the resistance of each is the exact equivalent of the *forms* of force that are continuously acting upon them. Our assumption that there is a like surface-membrane between the root-currents and branch-

currents of the atmospheric fluids in which hydrogen predominates, and that its branch-currents are correlated with the root-currents of like fluids, whose branch-currents are projected above the super-base of our stratification, is but an extension of the ideal that the organic outgrowth of our sphere, like that of its inter-forms, is effected by the building up, step by step, its needed fulcra, or *forms of resistance*, to fulcrate the upward advance of its *forms of persistence*.

It is, perhaps, gratuitous to repeat, that, in our ideal, both alike are constituted of the homogeneous or common essence of Infinite Being. But inasmuch as the elastic potencies of these common essential germs are, of necessity, moulded by the forms of the essential points of space through which they are forced to circulate incessantly, by their common weight and common form, they not only represent continuously an infinite variety of substantial qualities, but they are subject to an infinite variety of typal transformations. Hence it is their *common weight* and *common form* that force them to circulate, and to combine as organic forms; the elements and organs of the latter being, in turn, formed by the combination of the essential germs forced into their internal pores—typal moulds—from opposite directions, by the counter-pressure of those surrounding them. For example, it is the downward pressure of atmospheric air upon the upper hemisphere of the lungs, simultaneous with the upward pressure of the diaphragm against the lower hemisphere, that forces the aerial essences, moulded within the bronchial tubes and venous capillaries, into the pulmonary air-cells during inhalation. In coming together from these opposite directions with equal force, these minus and plus

mobile, or mature essential germs become inseparably combined in virtue of their opposite elasticity or counter-part sexuality. The atomic enspheredence of the ultimate germs that make up the essential organisms of the compound spherules ripened within the branches or female department of the venous system is consequent upon their somatic separation from their ova that constituted their nuclear organisms, and simultaneous with the atomic enspheredence of the latter by the ultimate germs *in ovo* of the mature germs that make up the essential organisms by which they become atmosphered in these air-cells. The deaths and resurrections that occur within the pulmonary air-cells during the interval between inhalation and exhalation are intertypal of the ascent of the atmospheric germs and the descent of the nuclear germs of like compounds within the aerial stratum of our world on the margins between its diurnal inspirations and expirations or ebb-tides and flood-tides of air.

Although the air under the moon's direct and reflex perpendicular rays is compressed as ebb-tides of air,—our world's inspiration,—yet the aerial germs are forced into the aqueous and earthy strata only during its exhalation, which is simultaneous with its incoming flood-tides of water. In like manner, it is only during exhalation that the aerial germs ripened within the intervacular bronchia of the venous system are forced out into the pulmonary bronchia—the rootage of the organism's external aerial stratum—simultaneous with the forcing-in of their ova within the intervacular bronchia of the arterial system. And, like the latter, the lines and points where its counter-tending fluids become reversed constitute its typal structure, its

static fulera. The structure of our purely vascular organisms is simply the lines and points where the elasticity of the counter-tending fluids of the different systems or strata of compounds become reversed, at which lines and points of equal momenta and reciprocal re-action their counter-elastic essences, or earlier and later reflected essential germs, become staticized *in ovo* as their respective conducting vessels. And just as the terrestrial organism became discreted from co-rotivity with the sun's superficies — its membranous or stratial condition *in embryo* — by the gradual introversion of the sunward hemisphere of its earthy, its aqueous, its aerial, and super-aerial strata, as internal organs or root-currents, simultaneous with the extroversion of their anti-sunward hemispheres as external organs, or branch-currents, through which it assimilates external substance as general outgrowth, so the human organism becomes discreted from the earth, and from the nuclear organism of its maternal parent, by like introversions and extroversions of the lower and upper layers of its "germinal membrane." Although their nutrient relations necessitate the co-extension of the roots and branches of all these strata of different fluids in the case of both, yet the substance of the root and branch vessels in each system of circulation must needs be alike in grade, but in reverse spacial or motile conditions. That is, the earthy grade constitutes the innermost or earthy layer in the vessels of each system, and also the outermost or super-aerial layer; while the aqueous grade constitutes the next innermost or aqueous layer, and also the next outermost or layer of aqueous vapors; while the aerial grade constitutes the lower and upper halves of the aerial layer.

3. In virtue of the counter-structural arrangement of the ova that constitute the vascularity of the different fluids of our organisms, those ripened within corresponding root and branch sections are minus and plus mobile, hence combine as female and male germs in virtue of their counter-elasticity; thence grow into the same specific structure as the parent corpuseles to which they are fruital, their ova in turn substituting their embryonic condition as did they that of their proximate predecessors.

These counterpart germs are brought into combinable proximity, during the passage of the fluids through the roots and branches of the male department into and through the roots and branches of the female department, and *vice versa*, of each system of circulation. This is clearly illustrated in the circulation of blood through the veins and arteries, in continuous alternation; while the outbirth of matured aerial germs from their branches, and the inbirth of immature aerial germs into their roots, is effected by the latitudinal elongation of the upper and lower hemispheres of the lungs, simultaneous with the longitudinal elongation of the polar hemispheres during inspiration. This is, *per se*, the elongation of the pulmonary, and also of the cutaneous, air-cells in these counter-directions, which elongations are reversed during expiration.

This renders the plus and minus mature germs, out-born and inborn from these air-cells, paramagnetic and diamagnetic, which alternate paramagnetic and diamagnetic compression of the lungs is intertypal of like compressions of our world's inner aerial stratum, by the forcing in of like fluids from a more outer aerial stratum. These compressions prolate and oblate its surface

waters, as ebb-tides and flood-tides in continuous alternation. These tides, which are the effect of the rotary circulation of the earth's external and internal atmospheric fluids, modified by the counter-pressure of the perpendicular and oblique rays of the sun and moon, are by no means like the depressions and elevations of ordinary water-waves, but are prototypal of the rush of blood from the hearts bilaterally during inspiration, their correlative ebb-tides, and its return thereto as flood-tides during expiration. The ebbs and floods within the hearts correspond with the rotation of the earth and its internal waters; while those within the venous and arterial capillaries of the lungs correspond with the rotation of the earth's surface waters.

The germs forced into the arterial and venous systems from the pulmonary and cutaneous air-cells, combine in such structures as their opposing polarities and meridionalities determine, because brought together from opposite polar and meridian points of ingress. If, as assumed, the bases of the compounds and complex forms within the sanguiferous system are generated within the nerves of the alimentary canal, and its branches that make up the thoracic duct, and within those of the lymphatic system, and that their superbases are generated within the pulmonary and cutaneous air-cells, we at once perceive that they, of themselves and for themselves, must needs construct the higher worlds, into which their outgrowing lower conditions, or *forms of moving*, force them. In doing this, the ultimate spherules of each not only embody themselves with their own nuclear ova, in accordance with their spherical status, which is, *per se*, the embodiment of the compound spherule or complex form they consti-

tute, in accordance with the spherical status of their strata of subsistence at their advent, but as these germs *in ovo* become ripened, and outborn from the nuclear organism by combination with like atmospheric germs external thereto, they become the atmosphere or branch currents of the nuclear organism's root-currents.

The assumption that the veins and arteries are male and female, or counter-elastic, matrices, and that their consecutive sections are constituted of the ova of these dual-sexed spherules, which represent the embryonic structure of the culminate species of our stratification at successive stages when its further maturation necessitated more complex inter-forms of force or internal organs, is based upon the perception, that, when at their elastic limits, as such, its simple spherules were forced back centre-ward by external pressure, they became diametrically opposed, and inseparably combined, first as simple, thence as more and more complex or compound spherules; thence, at their elastic limits, the latter became combined in the simplest, thence in more and more complex, forms. And by parity of reasoning we perceive, that, when each series attained the acme of complexity possible to the spherical status or spacial condition of the substance of the strata involved, each stratum of forms must have become partially re-organized by a pupa-like transformation, or wholly so by somatic de-organizations and somatic re-organizations.

In proof of this, we find the pulmonary and cutaneous membranes capable of self-restoration when partially destroyed, like the simplest animal forms. And we also find that the more outer capillary rootlets have but one coat, like the one trunk in the simplest animals. In the more and more inner sections, we find two coats

or layers, more and more clearly defined, as is the case in the water-vaseular systems, of more and more complex water-breathers. In the more and more inner sections, we find a more and more distinct middle or aerial layer; while, in nearing the hearts, the vascular systems of the consecutive sections represent those of the higher animals in the order of their increasing complexity, the highest, those doubled over as the two hearts, being *facsimiles* of the vaseular systems of the two sexes of the species in which it is developed. By substituting each other's spacial condition, the two sexes of the sanguiferous system are able to extend their branches as a whole above their common rootage in the lungs, thereby build up a super-aerial system of circulation, whose common rootage is in the brain, in like manner as the branches of their common external aerial currents have their common rootage in the pulmonary bronchia.

This process of ascending to higher altitudes, by constructing, step by step, the vaseularity of a series of root and branch currents, is clearly illustrated in the projection of aqueous vapors within our stratification above their common rootage in its mountain villa, in virtue of the counter-pressure of the water descending and ascending through them, but for whose hydraulic agency, and that of its vegetable villa, rain would be an impossibility.

4. When we take into account that the proximate basic cause of the orbito-axial rotation of our planet-sphere is the expansive pressure of one equivalent of its essential germs plus condensed as its nucleus or common rootage, and that the proximate super-basic cause is the condensive pressure of the other equivalent plus

expanded as its atmosphere or common branchage, which equivalents are not only counter-elastic as a sphere of gravity, but the root-currents and branch-currents of each are equally so down to those of their ultimate spherules, we at once perceive that under the proximate counter-pressure of the sun's direct and reflex rays, and the ante-proximate counter-pressure of those of the sun's sun, on and upward endlessly, the terrestrial organism is as truly *seeking* the variously condensed or matured germs of different altitudes and latitudes of the solar sphere, in order to nourish the various forms of life on their different planes of maturity within the roots and branches of its different systems of circulation, as is its culminate species. Man has no more choice in the matter of his circulation within the different stratal currents of the terrestrial organism, and the circulation of the latter within those of the solar organism, than any of the entities flowing through the increasingly more complex systems of his organism, whose needs, he, as their culmination, is *seeking* to satiate. Each and all alike are ascending into higher altitudes and broader latitudes, which is *per se* their gradual maturement, by subjecting the essential germs indigenous thereto as their constituent germs. The organism of each entity, above the complexity of a twain-in-one spherule, is built up of the ova of its constituent spherules as their common outer world, within which they nucleate and gestate like ova, of essential substance subjected from still higher or more spacial strata. In virtue of their more expansive elasticity, or more intensified vitality, and essential or inseparable organization, they are adapted, when outborn from their common matrice on the nuclear plane of development within the

rootage of the branches leading up to the higher strata, to ascend thereto in their organic capacity, by continuously exchanging their nuclear germs for corresponding atmospheric germs. The higher they ascend, the more condensive the substance they subject, and the more intense its expansive elasticity when concentrated within the ultimate rootlets. The fluids and tissues of man's organs in infancy are weak from lack of tension and tenacity. Their strength increases in the ratio the concentrated expansibility of the former increases, by condensation within more and more minute interior subdivisions of the latter, whose increasing refinement in grade, and in the unyielding directiveness of their outer bearings, is *in this ratio*. This process continues until they become gradually weakened, by the sprouting out, from their ripened branch-currents, of the rootage of a super-mature plane of being, through whose branch-currents the essential germs ripened on the mature plane are gradually ascending, which germs become the essential representatives of the species of animals within whose representative sections of his vascular systems they were developed. That is, these germs, which include the essential representatives of his every commensal, gaseous, mineral, and vegetable, as well as animal, on his present plane of sense-perception, become the bases of his outer world of forms on the higher plane, all of which become atmosphered by the grade of essential germs indigenous to this higher plane of sensible expression. These root and branch currents are by no means figures of speech, the use of which we decline as utterly inadmissible in scientific illustrations, but their forms and functions within man's nuclear organism are *objective realities*. Lowly air-breathers pro-

ject tree-like gills from like interior rootings. In ascending series, these air-breathing branches become inverted as the rootings of branches leading up to higher rootings, whose branches lead up into a higher stratum. These latter branches in the human organism constitute the *arbor vitae*, or tree of life, leading up from the medulla oblongata, behind the cerebellum or lower brain, within which it becomes inverted as the rootings whose branches lead up through the cerebrum or upper brain, between which counter-sexual brains the ganglia of special sense are developed, as the rootage of branch-currents outreaching to the limits of man's present plane of sentience. The fruits of this tree of life are man's concepitive creations, his ideals of the qualities of nature's forms, whose reflected waves of heat, light, sound, odor, and sapidity are to each what they become when ensouled and embodied by his innate and nutrient thought-germs. Empyreal essences of definite intensities liquified, are flavors; when aerialized, they are odors; when refracted by etherial vapors, they are luminous; when reflected by etherial solids, they are sonorous. The twain-in-one general sense of temperature and tangibility, which culminates in the medulla oblongata, are mother and father to the special senses, which culminate, as their fruitage, in the ganglia between their inverted branches in the cerebellum and the latter's nuclear branches in the cerebrum. Man's concepitive powers are what the essential thought-germs directly projected from these ganglia are capacitated to *conceive*, and *do conceive*, in becoming atmosphered or ensouled by like but counter-tending germs, radiated from objective forms. His reflective powers are the consensual reflections or re-actions of his sentient agents in their con-

crete or synthetic capacity, or, in other words, their ability to combine, and decombine, and recombine these conceived germs, as the representative images of the external objects ; their modes of motion within the mind being a repetition of those of their parent spherules, within or constituent to said objects. This ability to *compare* his ideals and their prototypes is his ability to perceive improvements in the latter, which, by *reflection*, improve the former. This, because he *reconceives* the images of the objects in their *ideally improved condition*. Man improves in the improvement of his ideals, whether or not his ability extends to the improvement of their prototypes. Perfect contentment with things as they are is an abnormal condition. Nature knows no such condition.

Our world of forms, which are nature's thoughts embodied in areas of space at eras corresponding with the grade of substance indigenous to the consecutively more spacial strata through which our sphere has ascended, *improves* in attaining more and more freedom to express the elastic tendencies inherent in their constituent germs. Man's thoughts, an inter-repetition of nature's thoughts, are continuously attaining more harmonious expression *in becoming embodied with more and more finely comminuted essences*.

5. Although our sphere and its proximate parent-spheres must have had their axial and orbital revolutions, yet all alike must have been gradually ascending from the nucleus of infinite gravity : otherwise, there could have been no *growth*. Step by step nature's more and more subtle grades of essential germs have ascended from the various depths to which their common weight had forced them, through the types of form possi-

ble to the strata of space involved. The improvements in the types of form indigenous to the consecutively more spacial strata of our world are readily traced by comparing those now existing within the roots and branches of its present surface-stratum with the fossils of past surface-strata, the assumed rootings of higher and higher branches. That is, the lower and denser rocks, whose beds are more or less horizontal, are the rootings of its mountain branches, the common fruits of which are its coral-forests, upon whose branches more and more fertile lands have formed and are still forming; the latter, with their innumerable varieties of vegetable and animal forms, being the rootings of the aerial stratum, and the former, the rootings of the super-aerial stratum.

Hence the assumption, that in like manner as there are ocean-currents and inland rivers, through which *fishes of passage* circulate to higher latitudes, thence return to lower, as their genetic conditions prompt, so there are aerial currents, through which "birds of passage" circulate to and from like latitudes for like purposes. And we regard these phenomena as prophetic of like local changes by humans for the preservation of their species; viz., their alternate passage from one polar hemisphere to the other during the intense heat and intense cold of succeeding equinoctial summers and winters. The mineral, the vegetable, and animal kingdoms of our stratification of the earth-sphere, and the various species of forms in which their respective gases predominate, have each and all outgrown by projecting their essential germs in counter-directions, first as roots and branches from horizontal axes perpendicularly, thence at every intermediate angle; thence, as

our sphere became gradually erected, they projected bilateral branches and sub-branches from perpendicular trunks.

This genetic principle is clearly revealed in the elevation of mineral forms, all of which are ensouled by animal types of the most intense subtlety from horizontal beds perpendicularly, through variously inclined layers above the rootage of the aerial stratum, thence, in every direction, through the branches and sub-branches of its coral-forests, the skeletons of more and more complex animal types.

In like manner, aquo-earthly germs have become erected and elevated from their lowest horizontal beds to the topmost branches of the vegetable kingdom. The entire process is seen in the propagation of the strawberry-plant and kindred types. At the limits of their vertical elasticity, the germs that direct the growth of their central branches bend downward, and take root in every bilateral direction, thence, in virtue of the inherent counter-tendency of the aquo-earthly and atmospheric germs that combine within their common vascularity, they are capacitated to repeat the same form of outgrowth as the parent plant. That is, they project these combined germs upward and downward, and in every lateral direction, through like vessels constructed of their common ex-nutrient essences. This and other species of more and more elevated under-growth condition the projection of lateral branches, bilaterally and diagonally paired, between the nodal sections of tree-trunks of increasing force in their upward bearings, up to the mighty branchless palm nurtured by the counter-forces of the earth's and sun's most perpendicular rays. All these processes are increasingly

complexed in the animal kingdom in the aqueous and aerial strata.

The idea that there are systems of circulations within the terrestrial organism corresponding with those in its highest animal organisms, and that their roots and branches, like those of the latter, extend correlatively from its centre to its circumference, presupposes that there is a like transferrence of the essence of forms ripened within lower systems into higher, by endosmosis and exosmosis. If the essential organisms of humans at somatic death are outborn into a system corresponding with the cephalic system, whose roots ramify the entire organism, then there must be actual channels and circulating media corresponding with those that make up the sensor and motor nerves.

If so, fitness to enter this higher system of sense-perception does not depend on distance from that portion of the terrestrial organism corresponding with the locality of the ganglia of special sense, but upon having become ripened and refined by transition through every provisional system. The ultimate visible extension of these roots and branches on animal forms, the termini of their efferent nerves, are real animo-vegetable cilia, whose forms are prolonged as rays of color when seen through a prism.

From the fact that they are portals between their nuclear and atmospheric organisms, through which germs fitted therefor are inborn and outborn, we recognize them as intertypes of the earth's animo-vegetable forms through which atmospheric germs are inborn, and aqueo-earthly germs are outborn.

The increasing diversity in modes of moving by animals is due to a corresponding increase in the number

of their internal organs, all of which are tubular, and an increase in the number of their convolutions, which results not only in a corresponding increase of absorbents, but diversifies their directions; so that they meet at a greater number of opposing points, at which they staticize as form. More complex forms need the tendencies inherited by the nuclear essences of these fixed forms, and of such free moving animals as live upon them,—vegetable feeders,—and those in the waters beneath them. This, because their tendencies are to move in directions the reverse of those by which they became aggregated as these forms. Consequently, when absorbed as nutriment, they become, within the organisms they nourish, the nuclei of the atmospheric essences absorbed by the cutaneous cilia.

The latter essences being fruitful to the atmospheric organisms of our world's forms, they are the atmospheric pabula of each and all, whether assimilated by the nerves of the alimentary canal as their sapidity, or by those of the pulmonary membrane as their odorosity, or by those of the ear, the eye, and the general porosity of the organism, as their sonorosity, luminosity, and tangibility respectively. As these qualities are the sum of the essential modes of moving by each and all, and as these pores include all the points of ingress and egress in each and all, it is readily perceived that the essential germs outborn as the fruitage of forms, are the correlatives of those inborn within their afferent vessels at their points of anastomoses with their efferent vessels; those priorly inborn becoming atmosphered by those subsequently inborn. The representatives of each special or specific mode of moving, or of currental circulation, must needs be nourished from its incipiency

by essences inheriting the same motive tendencies, thereby being *conformable* to the tendencies of the prime plus and minus condensed atmospheric soul-germs of the special organ or organism involved. The great mystery of life in form: all we know of life is the counter-activities involved in the assimilation of nutrient essences, and the parturition of like essences as ex-nutrient or fruital; every organ and organism being built up of counter-elastic essences, of ever-lessening spacial disparity or mobility, *between* their extremely counter-motile and inseparably cohered soul-germs. The prime organs of our world are its mountain villi, constituted of mineral and empyreal gases,—the least and most motile. They are animo-mineral, the latter predominating. Its next organs as regards lessening disparity in motility, between their prime counter-germs, are its flora. Their range in height and depth is correspondingly less.

They are animo-vegetable, the latter predominating. Its most complex villi are its free fauna, constituted of essences of still less disparity in density and tenacity, being predominantly aqueo-aerial, and correspondingly more motile and more complicated. The *rationale* of this consists in the elevation of life in the simplest forms to the greatest heights possible, as matrices provisional to the elevation of more complex forms to lesser heights.

In recognizing the earth's present mountains *in embryo* as the earliest matrices of our stratification, we recognize the spacial and timal conditions, that determined the density and tenacity of the counter-forcitive essences involved, as the conditions of those constituting its prime surface stratification, differentiated by

greater refinement and complexity, in accordance with its higher spherical status; hence infer that the crystalline forms of its past worlds, like those of our world, which are culminations of the former, progress in this order and ratio.

Like the *Amoeba princeps*, which are simply self-moving stomachs, the direction, height, and shape of its elevations were determined by its need to move in these directions, to these heights, and in these shapes; the equivalence of force causative thereto being an excess of super-pressure from counter-directions. If, as assumed, the result of every normal movement is an expression of its needed occurrence, then the plus and minus condensed substance forced into its depressed and elevated portions supplied the needs that conditioned its ingress. Hence our inference, that, like these simplest animals, which improvise limb-like absorbents as their need of counter-condensed substance demands, these embryo absorbents of our infant planet rose and fell when and where its needs demanded, until permanently statieized as in the present. Thence reeognizing the "carboniferous era" as that in which the "flora" of our world became incipient, we infer that it was in one sense a new creation. That is, the forms constituting its lower strata were organically defunct. Their normal nutriment, mineral gases, being superseded by vegetable gases as regards predominance, life must have become expressed again in the simplest forms, that of empyreal spherules of a degree of refinement and nobility corresponding with the higher altitude and greater spaciality of the succeeding strata.

But this new creation was coeval with, because the effect of, the re-embodiment of the preceding animo-

mineral essenees in more refined and more mobile forms. Rocks, whose super-bases are vegetable gases evidently, became incipient during the carboniferous era, whieh era culminated in the production of the gigantic vegetable forms that make up our coal-beds, and of the gigantic animals that fed upon them, animals that could no more breathe our air than we could breathe carbonic acid gas.

6. The advent of more and more refined and complex species of flora and fauna was consequent upon the increased density and rotary veloeity of the earth's substance, and a corresponding decrease in the density and axial rotivity of that of its atmospheric strata, whieh is in the ratio the latter's spherular nuclei increase in freedom to move. When the organic forms, the common product of the earth and its atmosphere, could no longer differentiate their organs to accord with this increase in the refinement and motility of their nutrient essenees, they became organically defunct from inability to breathe, and otherwise digest the elements surrounding them. But the elemental ova of their essentially vital or dynamic organisms, of which their fuleral or static organisms were constituted, were just the basic nutriment needed wherewith to embody their suecessors, whose super-basie nutriment was correspondingly more refined. Whatever the proeess by whieh the atmospheric and nuclear departments of past worlds were separated, we assume that our world became incipient as differentiated elements,—elements possessing additional funetions, which combined as forms correspondingly differentiated; thus on and on to the present. The faet that earnivorous animals instinctively select earlier species, vegetable feeders, as prey in preference to omnivora,—never preying upon earnivora,

except driven by hunger,—is evidence that animals of greater complexity require greater disparity in the motive tendencies of the basic and super-basic elements upon whose essences they subsist.

This, because, when combined as their constituent elements, they are *intermediately tenacious and mobile*. Less complex animals assimilate essences of less disparity in their opposing forceitiveness. The vital force attained by the assimilation of combinable essences is *per se* their tenacity and counter-tendency when equilibrated within their united spaces, priorly minus and plus. When staticized by direct pressure toward each other as the nuclei and atmospheres of new spherules, these spherules are adapted to move in accordance with the inherited tendencies of the counter-sexual essential germs that constitute them. Each spherule is a new power added to the organism in the sense of being *conformed* to its modes of moving, thence moving consonant therewith. The fact that the direct contact of two waves of sound, or of light, or of heat, of equal amplitude and intensity, respectively produce silence, darkness, and cold, is evidence that there is needed a limited range of disparity in condition between the essences that constitute an organism and those it assimilates as additional growth. The opposite effect of nitrous oxide and chloroform upon the human organism shows conclusively that both alike are beyond the natural limits of disparity in condition as regards *conformity* to the motive tendency of its constituent essences. Both alike produce temporary insensibility; the former by an abnormal elevation of the pulse, the latter by an abnormal depression of the pulse and of the functions of the entire circulation.

The expansions and contractions of the elements of the former compound are too rapid, and those of the latter too slow, to accord with the normal expansions and contractions of those of its circulating media. This is readily ascertained by computing the proportions and specific gravity or mobility of their respective component elements compared with those of oxygen and nitrogen proportioned as air. The fact that the proportion of the denser elements of our atmosphere decrease in the ratio of increase in distance from sea-level, the proportion of the rarer elements increasing in the same ratio therefrom, is a clew to the wherefore that the static structures of things change to accord with the increasing spaciality of conseeutively higher strata. Hence animo-mineral forms are provisional to animo-vegetable forms, the two former to forms predominantly animal; the denser essences of the former decreasing in the ratio the latter forms increase in complexity.

The fact that the dermal-skeleton of animal forms is superimposed upon the neuro-skeleton is our license for assuming that the earth's outgrowth to an altitude possible to its development necessitated a radical change in the entire structure of our world of forms, and their reconstruction in such forms as the more comminated grade of essential substance was adapted to constitute and to nourish.

The perception that the earth's equatorial belt of comparatively calm elements, and its bilateral counter-currents, are inter-repeated in its animal forms as their neuro-skeletons, includes the pereeption that the osseous framework of the limbs of quadrupeds, quadrumana, and bimana, with their correlative nerves, are inter-

repetitions of the lines of force on the periphery of our stratification where the sun's perpendicular and most oblique inter-tropic rays are reversed. This being the inclination of the earth's equator to the plane of its orbit, their plus and minus force alternates north and south of its line of direct advance during each diurnal rotation which culminates as one alternation of the entire earth-sphere north and south of its line of direct advance. That is, the time involved in crossing and recrossing the equinoctial to the same point equals the time of its passage from its aphelion, and its return thereto—its annual respiration—in like manner as the raising and lowering of the limbs of animals in ordinary walking corresponds with their in-breathings and out-breathings; the alternate expansions and contractions of the auricles and ventricles of the hearts being in proportionally lesser periods of time. The movements of consecutively higher stratifications of gravity are identical in effect with those of a series of increasingly larger wheels moving around a common centre, the movements in the case of both being effected by the forcible ingress of external essences still more condensed and more expanded from below and above their altitude, which, when combined, move in the same mediate directions as do the mechanical and gravitational wheels to whose forceitiveness they are basically and super-basically nutrient.

In machinery these essences are continuously escaping by plus expansion and plus condensation; while the counter-nutrient essences of spheres, and of their living interforms, are continuously *substituting* the condition of their ex-nutrient or fruital essences, atmospheric and nuclear. If the earth-sphere's nutrient essences are con-

formed to their modes of moving during their transition through the *extra* and *intra* solar spheres, we are prepared to find their circles and poles of maxima and minima radial force, and their points of reversion, repeated on its nuclear surface, and on the nuclear organisms of its surface-forms, in the order of their advent as the culminate representatives of its mechanical powers.

Inasmuch as we find the nerves of the nuclear equator or spinal column of these higher animals deflected bi-laterally at the junction of their limbs with the neuro-skeleton, we assume that the muscles, with their attendant vessels, that coalesce from the spine, thence wind around them spirally, and by whose alternate contractions and elongations these limbs move in walking, are repetitions of the points on the earth's mid-day and midnight meridians, where these perpendicular and most oblique intertropic rays are daily reversed during its locomotion around the sun by the daily strides of its diagonally paired atmospheric poles. In the present, these spirally coalesced rays are projected from their points of impingement upon the transparent super-base of our stratification to their counter-points on the earth's surface, whereas, in the earlier stages of its development, they were deflected poleward on the surface of its lower, denser, and more opaque super-base, thence, by a gradual bending-in under it, toward the equator, they finally impinged upon the surface counter-points of their *essential* forceitiveness. The changes in the condition of our stratification — the matrice of its interforms — are, of necessity, impressed upon their structures, hence its changes are revealed in their structural changes. In the order of their later advent, we find a gradual decrease in the number of their

limbs as they became gradually elongated and uprighted from their prime horizontal or bilateral position; two rows of ciliated feet on their sides being among the simpler forms of locomotive organs.

Just as a greater number of spinal nerves centre in and around the lesser number of limbs in more uprighted and erected animals, so the number of solar rays that coalesced as these earth-tending spiral lines from the solstitial points on the super-base of our stratification increased in the ratio of its elevation from increase in axial, and decrease in orbital velocity. We must next bear in mind that the periphery of our stratification moves eastward less rapidly than the earth's superficies, and more rapidly than the periphery of the stratification to which our moon is nuclear, hence rotates contradistinct from both, the motility of the substance of each in the aggregate being increased in the order of their increase in altitude and spaciality. Thence we must bear in mind that no rational perception of the correlations between the static and dynamic motive powers of forms, or of strata, or of spheres, can be obtained only as we regard the spaciality of each—which, as the *form* of their forcitiveness as wholes is an absolute fixity—as the inseparable counter-equivalent of the dynamic power of its content, regardless of the latter's transitions thereto and therefrom in consequence of external spacial and timal conditions.

In virtue of these contradistinct rotivities, the atmospheric and nuclear organisms of our sphere are reciprocally fulcral and self-locomotive under the equal pressure of the sun's direct and reflex rays as a whole, and of those specially condensed at the solstitial points.

These latter rays are continuously impinging upon the periphery of the earth's atmosphere with alternate plus and minus pressure at their points of reversion twenty-three and a half degrees bilateral to the equinoctial plane, which alternate plus and minus pressures are transmitted to corresponding points on the peripheries of its lower stratifications, and, lastly, upon its surface; the velocity of each being increased in the ratio its circumference is decreased. The frequency of their impingement upon the earth's surface is, and ever must have been, proportional to the earth's axial velocity, which, of necessity, increased in the ratio of its increase in altitude or spacial freedom.

As a consequence, we are prepared to find the organs of locomotion in the earlier and simpler animals numerous and extended bilaterally, in accordance with the lesser height and greater super-pressure upon their sphere of subsistence during its earlier stages of development, as well as with its more rapid transitions north and south, to and from these points of spiral super-pressure. Thence we are prepared to find the locomotive organs in the animal series lessening in number, and increasing in height and length, with definite articulations, and a gradual drawing-in spineward of the points of impingement, thereby approximating more and more to the structure of higher quadrupeds. As the obliquity of the ecliptic gradually decreased, these spiral lines of super-pressure on the periphery of our stratification were transmitted more and more rectangularly to the earth's surface, until, in the present, the lines joining their points of impingement on the former and on the latter are perpendicular, like the lines between the origin of the limbs of higher quadru-

peds and their feet, when standing. In walking, the points of plus and minus pressure on the latter's poised and raised limbs, on either side of the spine, alternate in equal periods of time, just as do the solstitial points of perpendicular and oblique pressure on the earth at antipodal points twenty-three and a half degrees bilateral to its longitudinal axis. The decrease in perpendicular pressure, and increase in bilateral pressure, upon the earth's atmosphere in the ratio of its increase in altitude from the centre of solar gravity, is *per se* its decrease in bilateral resistance or orbital velocity, and an increase in perpendicular resistance or axial velocity. This not only resulted in the gradual elevation of the super-base of our stratification, and a gradual lessening in the poleward deflection of the sun's rays at their solstitial points of reversion, but the earth must have decreased in latitude or width correspondingly. This change is manifest in the structural and functional differences between oviporous or reptilian quadrupeds and viviparous quadrupeds.

All intermediate forms of quadrupedal locomotion are indispensable links between the horizontal crawl of the former and the perpendicular step of the latter. The intermediate gradations are manifest in the bendings-in at the joints in the limbs of insects. Being indigenous to its aqueous stratum in their larval state, and indigenous to its aerial stratum in their imago state, we recognize their middle limbs, which fulcrate the movements of the anterior and posterior pairs as the positional and functional representatives of the earth's axial poles, which fulcrate the movements of its atmospheric poles. As all forms indigenous to the aerial stratum are such in virtue of being by inheritance a

compliation of all the meehanieal powers below their spherical status, regardless of their degree of development, the limb-movements of each are fulcrated by a central axis whose bilateral bearings are at right angles to those of its longitudinal axis, whether or not expressed as bieentral appendages. The four wings of more mature insects are prophetic of greater dorsal mobility in the future of more complex species when equally matured. In recognizing these fulcral points on the super-base of our stratification as prototypes of the four points above the neuro-skeleton of higher vertebrates where their foremost and hindmost limbs take their rise, we must carry out the analogy by regarding the upper aerial currents which flow poleward from either side of the equator, and which are constituted of ascending earthy and descending atmospheric essences, as prototypes of the subcutaneous nerves bilateral to the spinal cord of each, each nerve being formed by the union of an anterior or motor root, with a posterior or sensor root.

And we must regard the bones of these limbs as being built up by the nerves constituting the brahial and lumbar plexuses, and those arising from the neuro-skeleton at the points where they bud out, hence regard them as repetitions of the coalesced spiral rays that tend earthward from the solstitial points on the periphery of our stratification. From a perception of the principles involved, we recognize the present orbito-axial rotations of the earth, the expressed equivalency between the centripetal and centrifugal force of terrestrial gravity, as a mean between a greater and lesser orbital, and a lesser and greater axial momentum in definite counter-points of past and future time.

Thence perceive, that, back of a definite excess of orbital velocity, its axial rotation must have been westward. This movement so modified the elasticity of its elements, that the modes of moving by the interforms indigenous to the sunward and anti-sunward, or ventral and dorsal hemispheres of the earth-sphere as a whole, were statically and dynamically equalized in the sense that those within either hemisphere conditioned the movement of those in the opposite hemisphere *in an opposite direction*, the hemispheres, like their interforms, being counter-functional. Then, as now, the atmosphere of the sunward hemisphere must have been oblated, and that of the anti-sunward prolated, the substance of the former being condensed in the degree that of the latter was rarified, compared with a medium density. Then, as now, the organs of locomotion in their animal structures were antipodal, as were their atmospheric poles, which moved then, as now, in reverse directions, their coiling or anastomosing tendency being inherited from the anastomoses of their hemispheric matrices. The ventral and dorsal fluids in all animals move in opposite directions, as do the fluids below and above the plane of the earth-sphere's medium altitude within the solar sphere, the unchangeable line of equilibrium between its ventral and dorsal halves: hence our assumption that articulates were developed within the former, and vertebrates within the latter, the neural cord of articulates being on the ventral surface, while the spinal cord of vertebrates is on the dorsal surface. If the motive forces of our sphere's different strata of fluid compounds, like those of the different systems of circulation in its animal forms, culminate at specific counterpoints as inner and outer fulcrum, that is, if

there be correlated centres of ex-central force within the earth, that fulcrate the correlative movements of its atmospheric poles, in like manner as the ex-eentral force of the kidneys and hearts of quadrupeds, quadrumana, and bimana, fulcrate the eorrelative movements of their posterior and anterior limbs, then we have a clew to the *modus operandi* of the earth's locomotion, and to *how* the movement of the fluids in one hemisphere fulcrate the movement of those in the other in an opposite direction; the denser and rarer external substance against which these poles are pitted being prototypal of that against which the poised and raised limbs of these animals are pitted.

7. The locomotion of the earth's animals was never otherwise than hemispherically counterpoised. During its westward rotation, its sunward superficies moved eastward, and its anti-sunward superficies westward. The change from its then less mature associative advance to its present more mature locomotion is specifically marked in the structure of these counter-typal sub-kingdoms. *In embryo*, articulates are so coiled, that their ventral surface is external, while, in their mature coiled condition, the dorsal surface is external.

Vertebrates *in embryo*, as also approximate species in maturity, have no distinct hearts: the doubling over of the main blood-vessels as such, thereby reversing the flow of the blood, is not fully matured until their birth. It is a most significant fact, that, in their mature condition, the position of the nervous system of vertebrates is such, that it apparently *includes* that of articulates, as though the latter in their mature condition were enclosed within the ventral hemisphere of the former *in embryo* in such a manner as to grow into one structure,

or as inter-repetitions of the dorsal and ventral hemispheres of the terrestrial organism; the ganglia of the sympathetic nerve in vertebrates being those of the neural cord in articulates. The fact that the fluids of the "venous sinus" developed in the earlier stages of the chick *in ovo*, and which is permanent in approximate structures, flow horizontally toward the locality of the future hearts, is evidence that the incipiency of vertebrates extends back to the reversion of the earth's axial rotation from westward to eastward.

Although the archetype of the terrestrial organism includes all the mechanical powers involved in the structures and functions of its constituents from its incipiency, yet no specific power could become substantially embodied until the need of its efficiency — areas of space void of needed fulcra — conditioned its development: hence our assumption that all its systems of circulation from the centre of the earth — its organ of ex-central force — to the periphery of its atmosphere are as inseparably correlated statically and dynamically as are those of the human organism. Now, taking it as granted that the earth-sphere as an individual organism makes but one axial rotation during one revolution around its maternal sun, it is readily perceived, that, during its horizontal locomotion, the sun's perpendicular and oblique solstitial rays impinged upon its sunward or ventral hemisphere at equal distances from one of its equinoxes, and that the *reflex* force of these rays impinged upon its anti-sunward or dorsal hemisphere at antipodal points in correlative periods of time. Then take it as granted that this equinox is the prototype of the central axis of quadrupeds, and that the bi-equatorial points of impingement by these rays are prototypal

of the points on the neuro-skeleton which fulcrate the movement of their limbs, we perceive that the points of alternate plus and minus pressure on the earth-sphere's dorsal hemisphere, which are pitted against the points of alternate minus and plus pressure on its ventral hemisphere, are prototypal of the alternate plus and minus pressure from their dorsal fulcra upon the poised and raised feet of quadrupeds during locomotion. Then, taking it as granted that animal forms became existent in the order of their increase in complexity, we assume that the erection of the head, and the advance of the heart headward, were simultaneous with, and consequent upon, the gradual erection of the earth-sphere from its horizontal position, during which the earth became nearer its anterior extremity. The erection of the solar sphere, and the advance of the sun anteriorly, being simultaneous and provisional thereto, we perceive, that, while the latter's solstitial rays impinged upon the earth-sphere at similar points, its longitudinal axis had become perpendicular to its line of orbital advance; the whilom point of anastomosis between its posterior and anterior extremities having been its other equinoctial point.

These changes in the earth-sphere's structure and functions were, *per se*, new generative powers, powers adequate to individualize new forms of force in its own general likeness,—erect humans, whose limb-movements are culminations—because *essential combinations* of those of all preceding species. The greater complexity of movements by their anterior limbs, compared with that of the posterior limbs, corresponds with the difference in density of the solar atmosphere at lower and higher altitudes. As substance must be condensed to definite

degrees in order to be objective as forms, the forms nearest the centre of a sphere, although the first to become visible, are correspondingly less free to express their inherited tendencies. Although all the modes of moving by humans (the latest vertebrates) are included in the archetype of fishes (the earliest vertebrates), yet the outer bearings of their organs are less numerous in accordance with the lesser comminution of the substance of their lower stratum of subsistence.

The greater pressure on the anterior extremity of monopodal vertebrates during their horizontal locomotion is the wherefore of the greater complexity of their anterior organs. The fact that the anterior limbs of sea-mammals are expressed as shoulders and hand-like fins is our license for assuming that they are intertypal of the solstitial rays that impinged upon the anterior portion of the earth-sphere's sunward hemisphere during its horizontal locomotion within the sun's dense, vaporous atmosphere. And the fact, that, in the order of their general increase in erection, the upper and lower bones of the anterior limbs of animals became interposed between the shoulder and wrist, or their homologues, licenses the assumption that their increase in length and in complexity of movement was the result of the increase in erection and altitude of the sphere within which they were developed as constituent organs; the interposition of like bones between ankle and hip, or their homologues, being at a later era.

To idealize this more clearly, we will assume that the reflex solstitial rays or spiral currents that impinge upon the anterior portion of the earth-sphere's anti-sunward hemisphere, and which become deflected bilaterally from the tropics to the polar circles, where

they are reversed as tropic-tending currents on its sunward hemisphere, are respectively the prototypes of the upper and lower bones of the human arm, which articulate with each other at the elbow as do these upper and lower solstitial currents at the magnetic poles. For reasons too numerous and too intricate to itemize, we assume that the brachial plexus of nerves that control the movements of the scapula (shoulder-blade) is intertypal of the sun's reflex inter-tropic rays, which are deflected from either side of the plane of the earth's equator to these anterior solstitial points, in accordance with the earth-sphere's decrease in longitude.

This plexus consists of the four lower cervical nerves and the upper dorsal nerve, "which pass into each other, then separate to re-unite." The ventral-tending force of these more compressed nerves fulcrates the force of the less compressed nerves that control the movements of the fingers and thumb within the ventral hemisphere of the organism; the force of the thumb and that of the fingers being relatively nuclear and atmospheric.

The lesser mobility of the scapula and humerus of the upper arm, which articulate at their junction, represents the greater compression of the anterior and anti-sunward solstitial rays within the torrid and temperate zones, which articulate at the tropics; while the greater mobility or freer expression of inherited complexity in the two bones of the lower arm and the five bones of the hand represents the lesser compression of these rays within the *atmosphere* of the temperate and torrid zones of the earth's sunward hemisphere; the articulations between the former at the wrists being intertypal of the articulations of the latter at the tropics; the

elbow articulations being intertypal of their polar reversions. By placing the tips of the fingers and thumbs on the two hands together, and extending and reflexing the arms horizontally, the articulations at the shoulders, the elbows, and wrists, are clearly shown ; the articulations between the bones of the fingers and thumbs, including those of the carpal bones, being expressions of the motive tendencies inherent in the four cervical and one dorsal pairs of nerves that make up the brachial plexus.

By placing the wrists together — holding the hands upright in front of the chest, and flexing the fingers and thumbs while in contact at their tips — we at once perceive that our hands represent two polar hemispheres of gravity, in the sense that their inherited motive powers *in combination* act from a definite centre as truly as do the nerves of the right and left hearts, or those of the right and left hemispheres of the brain. They are the common offspring of the two arms, just as the head is that of the two sides of the body.

The lesser range of the lesser mobility of the thumbs is a repetition of the lesser range of the lesser mobility of the dorsal hemisphere of the arms ; while the greater range of the greater mobility of the fingers is a repetition of the greater range of the greater mobility of the ventral hemisphere of the arms.

As the structural tendencies of extremital or external repetitions always express the bearings of like anti-extremital or internal repetitions, they are reliable criteria. Judging by what they reveal, we assume that the grand struggle of universal formation consists in overcoming the pressure of the essential substance of form by which it is surrounded *by building up therefrom*

within its own subjected spaciality organs of resistance and persistence adequate thereto. As these organs were of necessity repetitions of its own form of forcee within itself at the era of the advent of eaeh, each was, like itself, a distinct organism, which expressed *specifically* its status of development *at that era*.

The proeess by which vertebrate forms of moving, which include the serpentine and the vermicular, are evolved from a horizontal membrane, within which the embryo becomes developed up to complete erection, is readily traeed. But in the development of the animal series below these modes of loemotion, although not so readily traeed, there are unmistakable evidenees of a gradual depression of the anterior extremity down to the complete erection of the posterior extremity, thenee a gradual return to a horizontal position. These phenomena license the assumption that all spheres of gravity originated as dual-layered membranes, between whieh layers their various forms of force or organs became built up within like layers of membrane by the ingress of essential substance from opposing direetions; the substance exereted therefrom becoming the bases of their atmospheric elements. And the known rotation of *spheres of gravity* lieenses the assumption that these depressions and erections of its interspheres and interforms resulted from the rotary tendency of the sphere of universal formation around *its* centre.

8. Owing to the increase in space of each stratum of more finely comminuted substance from the earth's surface outward, the essential types of form indigenous to eaeh are different from those of any other. And as the eompounds and complex forms developed within each (those actual and those typal as regards

our pereceptivity) are combinations of the essential types fruital to the compounds and complex forms of the strata above and below it, the complex types indigenous to each stratum are necessarily different from those indigenous to any other stratum, in the sense that the inherited tendencies of these stratial forms are expressed in accordance with their freedom to move, which is, *per se*, greater or lesser maturity. The earth's different stages of maturement are revealed in the fossils indigenous to its different strata.

Although their softer tissues have been washed away, and replaced by hydrous minerals, yet their solid skeletons are criteria by which to determine the elements predominating at the era of their development within its successive strata. Licensed by the fact that winged insects are the atmospheric counter-types of their larvæ, we recognize amphibia, all of which outgrow from the aqueous stratum into the aerial, as the nuclear counter-types of like species that outgrow from the aerial into the super-aerial stratum. Thence we recognize reptiles that creep and crawl on the earth's surface as the nuclear counter-types of birds that walk on and fly above it, both being oviparous. Their internal organs are mechanically similar, but represent lesser and greater degrees of development.

From this clew we infer that the higher species developed within the aerial stratum *between these extremes* are complications of all the meehanical powers involved in these earlier species; the disparity between their lesser and greater development, manifest as lesser and greater complexity, being lessened in the degree they approached intermediaey as regards their stratial position and the time of their advent.

In order to determine "man's place in nature," or, rather, within the terrestrial organism, as a complication of the mechanical powers of every other species, we must bear in mind that those of every later species are combinations of the essential germs fruital to all earlier developed species, prior and subsequent to the somatic separation of their nuclear and atmospheric organisms by the *return* of their essential germs to their native, or lower and higher strata, in their segregate and aggregate capacities. That is, all forms are continuously returning, as fruitage, equal quantities of essential substance to their counter-parent strata, in exchange for the quantities they are continuously receiving therefrom as nutriment; which stratial substance is plus and minus mature compared with that at their present intermediate altitudes, the ascent of their atmospheric organisms to the post-mature plane at somatic death, being the mechanical counterpoise of the descent of their nuclear organisms, the sum of the former's elemental ova, to the ovum, or immature plane.

The plus and minus condensation of quantitative equivalents of like essential germs within the plus and minus spacial organs of generation in the male and female of each species, which render them the essential representatives of those constituting the higher and lower parent strata, are the conditions by which all the specific structures constituent to the earth-sphere's consecutively earlier and more elevated atmospheric strata become repeated as the constituent species of each later surface-stratum. All the spacial and timal modifications of the mechanical powers involved in the earlier are inherent in the later, but in consecutively less mature stages of development. There is nothing ab-

struse in the inter-repetition of external forms of force, if we but bear in mind that all external forms of force are purely the expression of the inherent tendencies or bearings of the internal organs, or machinery involved. The growth of each later stratum above the nuclear department, and below the atmospheric department, of each earlier stratum, is self-evident as a *mechanical necessity*, were it not geologically demonstrated. This, because the “correlation of forces”—so much talked of, and so little understood—is purely in virtue of the counter-spacial condition of the quantitative equivalents of substance, through whose opposing momenta the phenomena involved are expressed. This is clearly revealed in the homologies and analogies expressed in existing species. Those between the organs and functions of larvæ and their respective imagos, and those between the organs and functions of reptiles and birds, are readily traceable, if we but take into account the lesser and greater mobility of the elements upon whose essences they respectively subsist.

The fact that the mechanical structure and modes of moving by amphibia are intermediate between those of the same genus, order, and class of water-breathers and air-breathers, is self-evidence that the former are the common offspring, or crosses, between the mechanical powers of the two latter, in the sense that the lesser and greater mobility of the essences constituting the aqueous and aerial strata represent the lesser and greater condensation and counter-elasticity of the essences fruital to the female and male of each species, in virtue of which they combine as their common offspring.

9. Although not so classed by zoölogists, yet the frog

species is the most complex amphibian; that is, its mechanical or organic powers are expressions, because complications, of all those evolved through every other species within its counter-parent strata,—that below and that above its medium altitude. Hence the genetic process, by which it outgrows from the aqueous into a higher stratum, is a revelation of, because basic to, that by which the human species—the culminate representative of the mechanical powers evolved through all species below and above its altitude, and which is now outgrowing into a higher—outgrows from its aqueous plane of subsistence into the aerial plane. The ova of frogs are neither meroblastic, like those of birds, nor holoblastic, like those of placental mammals; but they are vesicles of evolution, like those within which the spermatozoa and germatozoa of the human and other higher species grow up through the pre-specific plane to the specific plane. The prime visible condition of a frog is that of a fertile spermatozoan ovum partially developed. Its prime nutriment carries it up to tadpole infancy.

The moulding of its male and female elemental germs within the organisms of its male and female parents is the proximate cause of their tendency to grow up to the same specific structure; while the more and more remote causes of the development of the species is because it is the very *form of force* these germs are adapted to become at this specific altitude, after being moulded *in transitu* through the compounds and complex forms that make up, not only their proximate parent strata, but every strata above and below them within every more embracing parent *sphere*, back *ad infinitum*. Starting with this culminate transitional

species, we are able to trace its structural and functional kinship to all species below and above its status of complexity and development, and, by parity of reasoning, can perceive a like kinship between the human species and a higher stratum of compounds and complex forms, whose mobility is as much greater than that of those within the aerial stratum as the mobility of air is greater than that of water. That is, on the assumption that the super-basic essential germs of the human species are ante-proximately moulded within the former, and those basic thereto within the sub-aqueous stratum; those within the aqueous stratum being proximately maternal, and counterpart to like male germs fruital to the stratum of meteoric water. The stratal forms to which the super-basic germs of the human species are assumed to be fruital, being super-sensible, our only clew to their characteristics is what is revealed through the characteristics of those within the aerial stratum in contrast with the characteristics of aquatic animals, whose counter-elastic germs are assumed to become—when remoulded within the counter-spacial organs of generation in the male and female of the frog species—the super-basic and basic constituents of their common offspring, the tadpole, the culminate species within the aqueous stratum.

Its ability to outgrow into the paternal stratum is consequent upon its ability to grow or repeat all the mechanical powers or forms of moving within the maternal stratum *as its own organic machinery*. These abilities are the spacial and timal modifications of its counter-tending essential germs of form, and were *acquired* during their descent and ascent through these strata to the dividing line between them.

10. The essential force of the earth's counter-tending rays differs at their every different point of meeting: hence they combine as different atomic germs at each, — germs impossible to any other point. The locomotive abilities of tadpoles being most apparent, we will first attempt to ascertain whence and how they were inherited and evolved, thence take it as granted that every other ability has a similar origin, and also take it as granted that the increase in complexity of all species of animals—aquatic, amphibious, and aerial—is proportional to the increase in altitude at which they become normally existent; their increase in complexity being in reverse order of their increase in ability to express it. Consequently, the mechanical powers combined as the tadpole's organs of locomotion, the highest aquatic species, are super-basic to those combined as the organs of locomotion in all aquatic species, and basic to those combined as the organs of locomotion in all aerial species. Its ability to make one bilateral and one perpendicular movement with its tail — its one leg, at its fulcrum, the locality of its undeveloped genital organs — is a complication of all the bilateral and perpendicular movements by serpents and worms, aquatic and aerial, which have no definite tails, only elongated bodies. These motions are duplicated in its frog form in the sense that each division of its whilom tadpole limb is capable of the same movements, but with corresponding lesser mobility.

Its one perpendicular movement in its leapings is a complexity of the perpendicular movements by all myriapoda, up to those of quadrupeds, including the hop of birds on two feet. The bearings of the posterior limbs of tailless species are more complex, for

the reason their vascular systems include those pertaining to the tail of other species.

Per contra, the tail of species having no posterior limbs is more complex in its bearings, as the vascular systems include those pertaining to the limbs of other species: hence we find the tail decreasing in size in the ratio the size of the limbs increases.

The pectoral fins of fishes, and the swimming paws of sea-mammals, are the anterior counterparts of like organs bilateral to the tip of the tail,—the feet of their one posterior limb; like dorsal and ventral organs being provisional to their development. Our inference that the tail of animals is provisional to the development of limbs, and that the changes in the form of the feet in limbless species correspond with the differences in form between the feet in limbed species, is licensed by the fact that the bilateral spinal nerves that terminate in the tail of the former are distributed between the limbs and the tail of the latter, all being transferred to the limbs in tailless species.

This is effected by insects during their larval state, all of which are virtually tailless in their perfected state. This secret process is openly revealed in the transformation of tadpoles into frogs, which is also a clew to the transformation of birds *in ovo* and of mammals *in utero*; the latter being a clew to the transformation of species, all of which are specific organs of the same organism, our common strata of subsistence. In studying its more extended relations, we find the hip-movements of the frog, and also its degree of erection, mediate between those of the most complex species next above and next below its altitude,—erect-walking penguins (air-breathing aquatic birds), and horizontal surface-swimmers (air-breathing fishes).

As the mechanical powers involved in horizontal, semi-erect, and erect locomotion, must of necessity differ in structure in accordance with the bearings involved, the limb-movements of animals are the best criteria by which to determine the number and character, or complexity, of the mechanical powers they express in their bearings during locomotion; and the degrees of freedom with which these powers are expressed are criteria by which to determine the degrees of development or maturity of the species, which are assumed to increase in the order of their earlier advent. That is, in the order the structures through which the forms of moving by preceding species are repeated and re-repeated in miniature within succeeding species by the ingrowth therein of their respective essential germs *seriatim* as constituent germs; repetition, metaphysical as well as physical, being *per se* increase in maturity.

In analyzing the altitudinal range of the mechanical powers of these border classes, we find that the order batrachia includes that of the most complex but least mature birds, and that of the most complex and most mature fishes. The movement of the tail, the one limb of fishes, is the most complex expression of serpentine motion; that of the four limbs of semi-erect frogs is the most complex expression of vermicular motion (the normal movements of measuring-worms and other wave-like movers, and the normal and semi-normal leaps by quadrupeds, being less complex); while the stepping of erect birds is a combination of the two former motions on the lowest plane of bipedal locomotion. The trot-step and pace-step of quadrupeds, being provisional thereto, are less and still less complex.

11. That the elevation of the head, first to a horizontal, thence to an upright position in the animal series, is gradual, and in the order of their later advent and increasing complexity, is clearly revealed in the various modes of moving by existing species. Fixed parasites have the head downward: others less and less, or periodically fixed, move about with the head more or less depressed. Even among mammals we find the head of manati or sea-cows depressed below; while that of seals is elevated above, the horizontal position of that of whales.

Erect air-breathing monopeds, the snail type, manifest either the serpentine or the vermicular mode of locomotion; that is, they alternately extend and contract the tissues on the sides of the foot; or they extend the anterior tissues, thence by contraction drag along the posterior tissues; the latter's extensions being simultaneous with the contractions of the former, like the higher and lower halves of a water-wave.

Complex modes of moving are combinations of the undulatory movements of the lines of essential substance that become assimilated by an organism, all of which react in accordance with their various degrees of inclination to its line of direct advance. As the elevation of its anterior extremity necessitates the efficiency of the forms or organs of resistance to external pressure in every other direction, its increase in erection is its increase in complexity. Now, taking it as granted that the perpendicular depression of the anterior extremity in the animal series from a prior horizontal position, thence its re-elevation to the horizontal,—which reversed the direction of the individual locomotion of its interspheres,—was in consequence of the

semi-rotation of the solar system's maternal sphere at its altitude therein, during which the rotation of our sphere became reversed, which conditioned the development of vertebrates, we are licensed to infer, that, when another semi-rotation shall have been completed, it will have passed its sunward erection to its prior horizontal position. As the solar sphere's sun is necessarily on a line between the earth and its sun when the two former are at the lower apsis of their respective orbits around the latter, not only does the line of their apsides coincide, but their solstitial colures: hence the earth-sphere's latest erection culminated at the commensurate perihelia of the sun and earth when the line of their apsides coincided with the earth's solstitial colure.

From a terrestrial aspect, this point of coincidence was on the mid-winter meridian of an equinoctial year; while, from a solar aspect, it was on the midnight meridian of a solar day at the earth's altitude within the solar system. As the precession of the earth's lower solstice now amounts to about nine days and nineteen hours (about ten degrees), it has been advancing from this culminate point of comparative dearth and darkness, toward the dawn of a new golden age, for about 720 years; hence will arrive at the mid-day meridian in about 12,214 years. The dawn, when the line of its equinoxes and apsides are at right angles, will be reached in about 5,747 years.

12. If, as is self-evident, our organs are the agents that do what we are said to do, their substance, in turn, doing what they are said to do,—not a millionth of which doings is under the control of the conscious ego,—then it is the substance of the organs of nature, the sum of its organisms, that does what nature is said

to do, whether or not all its doings be subject to the conscious control of the Infinite Ego.

As is well known, our earlier organs in their different stages of evolution acquire new generative power,—power to build up or *create* additional organs as their common need of more complex organs demand.

Now, we assume, that, during the prime erection of our sphere in the direction of its maternal sun (it matters not the number of times this maturing process has been repeated), it gradually attained new generative powers,—powers adequate to build up the erect human species; and that the substance involved became aggregated as such at such localities on the earth's surface as favored their incipiency; that is, the structure was a *new creation* in the sense that the essential substance involved had attained the very attributes that believers in the arbitrary creation of species ascribe to an assumed arbitrary creator. This more obvious cause is a clew to more and more remote causes; viz., that as our sphere ascends from its earlier fetal conditions, and becomes crested toward the foci of the consecutively more remote ancestral spheres of gravity through which its constituent elemental germs were moulded *in transitu*, these germs, in returning to the consecutively higher altitudes whence they descended, will attain in their *aggregate capacity* more and more freedom to express the motive tendencies *acquired by their descents and ascents, or male and female planes of maturement*. This aggregation of essential substance in new species of form, and their increasing maturation or increasing mobility by transformations, is necessarily co-infinite with space and time, which condition their expression as such. Inasmuch as these perceptions favor the theory

that our world was a specific creation, and that its different species were successive creations, and that a time will come when it must pass away by somatic death, like its interforms, and that it will be succeeded by a "new earth and a new heaven," — not an after-death heaven, but the atmosphere of the new earth, — we infer that our present kindred theories originated in traditions of like perceptions as regards the order of nature by prehistoric philosophers, but who, unlike those of our age, perceived that the creative power and the archetypal design involved *existed in the substance of things*, not in a *personal* Creator. But, as all theorists agree in regarding the Creator immanent in that which is created, all are alike orthodox on the only vital point. It is simply the admission that things are that which constitutes them what they are. Not only is the essential substance of our atmosphere so modified by the organic functions of the present and pre-existent nuclear forms to which it is fruital, because ex-nutrient thereto, that it is conformable to the specific modes of moving by their respective offspring — present and future, to which it is constitutently nutrient, but the points at which the atmosphere presses upon the earth with specific degrees of plus and minus force are so repeated within the atmosphere of each nuclear form, that it is impelled to act and re-act in consonance therewith.

13. Here arises the universally debated question of "free agency." And what a question! Why, the term *free agency* is of itself as indefinable as the conception of an effect without an adequate cause: what it purports to signify is impossible. The possibility that one of the inseparable parts of an infinite whole could express its static and dynamic qualities, — all

there is of any thing,—otherwise than in accordance with the conditions by which it exists as such, *is utterly unthinkable*. The wherefore that its possibility has been admitted is because of the non-recognition that all that appertains to the ego, the real man as a self-sentient individuality, is the essential substance of the objective universe which has been assimilated through the afferent nerves of general and special sense as the constituent nutriment of each (their vascularity and circulating media being the all of his objective individuality), and the non-recognition that the different qualities of each object are the different modes of moving by its dynamic or atmospheric essences, which culminate as its concrete qualities, or representative image, and which, when assimilated as a part of the vascularity and circulating media of his sentient organism, exist therein as the nuclear or subjective representatives of the atmospheric or expressed qualities of the objective universe. The non-recognition that man's entire nuclear-organism is made up of essences that procreate sensation, hence must be inherently sentient, is the cause of all disbelief in the continued existence of his sentient organism, which is the sum of the atmospheres of these nuclear or subjected images that make up his universe of conceptive creations, his identity as a sentient being: otherwise, his *intense desire* to retain his sentient individuality would be to him, as it in reality is, *self-evidence of its satiation*. The sum of their nuclear organisms, essential or elemental germs *in ovo*, is his somatically dead organism when their atmospheres become ensphered by corresponding essences indigenous to a higher plane of sense-pereception, this being the resurrection thereto of his sentient selfhood.

14. When all these facts are duly recognized, we at once perceive that every thing we feel, taste, smell, hear, or see, makes and leaves its impression upon the atmospheres of the elemental nuclei that make up our nuclear organisms, causing them to respond to each *with a force proportional to the impression received*. This, because these nuclei and their atmospheres are homogeneous as essence, and inherit the same tendencies; only they are in opposite stages of development, comparatively embryonic and mature. That is, the former are adapted to become what the latter are; while the latter are adapted to become, on a higher plane of sense-perception, what the former are on our plane; viz., the nuclei of spherules whose specific aggregations are non-objective to the nuclei of our present organisms, but objective to their atmospheres when they are correspondingly condensed as the nuclei of atmospheres correspondingly mature on the higher plane. The whole mystery of progress in complexity is revealed in the perception that forms are compounds of corresponding elemental germs in counterpart stages of evolution, from the centre of a sphere outward, hence are relatively minus and plus mature or mobile, consequent upon their counter-spherical, or counter-spacial conditions. And the whole mystery of progress from lower to higher planes of sense-perception is revealed in the perception that the sum of the nuclei of the spherular constituents of our organisms is its self-sentient and self-directive soul during its somatic life on our plane; and the sum of their atmospheres is its objective expression, which, by condensation, by substituting their condition, *becomes the soul of a corresponding embodiment on a higher plane*; thus on and on, ever and for ever.

In virtue of this adaptability of the static and dynamic agents of sentience to substitute each other's conditions *progressively*, the rays of atmospheric essences from an object in the outer universe, which are first assimilated, become plus condensed as the nucleus; or soul, of its offspring, within the human or other sentient organism; the later assimilated essences being its atmosphere or embodiment. The former, being the representative of sense-perception, senses, or, if indigenous to the optic ganglia, it sees what it is,—the representative image of the object that procreates it, in virtue of the impressions made upon it by the modes of motion responsive thereto within *its* atmosphere.

It is thus that each representative of man's organism within his optic ganglia sees in a mirror that which procreates it,—*itself on the plane of sensible expression*; the impression being always in accordance with the conditions under which it is seen. Being originally atmospheric, soul and body, the ideal image of each subjected object, which matures as such directly it is conceived within man's sentient organism, is adapted to sense or see corresponding objects on the higher plane when re-embodied by essences corresponding with those by whose modes of moving they become expressed.

If, as we are forced to admit, we *are* what we *sense*, then the characteristics of the forms about us, whose essences become our sensations, whether or not harmonious, *are unavoidably impressed upon and ingrained in our growing organisms*. It matters not what we believe or disbelieve, whether our motives be good or evil, whether we be wise or ignorant, free or enslaved, the sole reason why we do what we do, and not otherwise,

even when we know it to be injurious, not only to others, but to ourselves, is because the influence impelling us in that direction is, for the time being at least, *predominant*.

15. The fact that the bones of animals *in ovo* are developed by the inbirth of the empyreal grade of essence recognized as vital heat, which, by its solvent and adherent properties, decombines and recombines the elements of the ovum as the inherent tendencies of its species demand, is self-evidence that the bases and superbases of their mineralogy — a repetition of that of the earth's — is vital heat, *the essence of animality*.

And the correlative fact, that a like degree of terrestrio-solar heat, under favorable conditions, effects the transformation of all species of meroblastic ova into their respective parent structures, is self-evidence that *the combined motive tendencies of terrestrial and solar heat are per se vital or animate*. In virtue of this, the essences involved, whose static and dynamic force is the vitality involved, are proximately parental to all terrestrial forms, all of which are outgrowing in every department of our sphere simultaneously, regardless of their timal relations to us as past, present, and future, compared with our stage of development.

Although these essences are proximately radiated from the sun, and only reflected from the earth, yet, in becoming the interforms that make up the earth-sphere, they are at the same time the interforms of the solar sphere, just as the elemental spherules that make up a single animal cell are alike constituent to the cell and to the organism of which the cell is an integral part. Hence it is impossible to idealize the principle of life in our world, only as we regard it as the sum of that of

its interforms, and regard the earth-sphere as the sum of its worlds, or stratifications of contradistinct planes of sensible expression and sense-perception, and regard the solar system as the sum of its interspheres, so on *ad infinitum*; each alike, from the simplest twain-in-one atom, being a *contradistinct* organism, and at the same time constitutently subjective to that of which it is an integral part. Viewed in this light, it is possible to idealize our world of forms as the most complex stratification within our sphere, but lowest in its stage of development. Thence it is possible to carry out the analogy by regarding its constituent strata as systems of circulation whose roots and branches extend to the centre and to the circumference of our sphere in virtue of like inter-relations between the roots and branches of its different stratifications. Again: it is possible to idealize our sphere as the organic representative of the third stratification of the solar organism, the roots and branches of whose circulating systems extend to the centre and to the circumference of the solar sphere, in virtue of the reciprocal relations between the roots and branches of the circulating systems of all *its* stratifications.

Thence, by regarding the planet-spheres, in the order of their *later* evolution as the sun's surface stratifications, as subject to an increased number of super-centres, hence plus in static force, while in the order of their *earlier* evolution they are correspondingly increased in development or mobility (dynamic force), we idealize the principle that *forms of life are compounded of specific degrees of complexity and specific degrees of maturity or development.*

This idea includes the perception that the substance

of the solar sphere is the earlier and later rays of heat and light from the sun's sun, the earlier being reflected from the sun as the bases of its planet-spheres; the later, in process of descent, becoming their super-bases. And it also includes the perception that the earlier rays are not only plus condensed, but they attain a new mode of motion in being more reflective, hence are plus complex compared to the later rays with which they combine. Regarding the rays emanating from each planet as its fruital essences, we perceive that those emanating from the sun's sun, which combine as the super-bases of those emanating from the sun, are minus complex, because subject to a less number of axes of motion, hence move in a less number of directions, although fruital to the nucleus of a more mature sphere. However complex the sun's parent rays may become by transmission through the planet-spheres, yet they are minus complex compared with those radiating from the sun, for the reason the sun's rays inherit all their inherited modes of moving, plus their own direct reflection from the centre of the solar sphere.

Regarding the planet-spheres as the common offspring of the sun (female) and of the sun's sun (male), we perceive that the more outer planets are plus mature in the degree the more inner or later-developed are plus complex. By this means we idealize the principle that *male germs are plus mature on a less complex plane, while female germs are minus mature on a more complex plane*; the former being plus dynamic in the degree the latter are plus static, compared with their combined mobility. Thence regarding the secondary planets as the common offspring of the sun and the primary within whose atmosphere they are developed,

we idealize the principle that the functions of sex are relative, and essentially interchangable; the rays of the sun being the male germs, and those of the primary planet the female germs, plus and minus condensed as the nuclei and atmospheres of the elemental spherules involved. Again: regarding the earth-sphere's motive forces as a primary inter-repetition of the solar sphere's motive forces, and those of the lunar sphere as a sub inner repetition in the sense of inheriting those of both its parent spheres, we idealize the principle that increase in complexity is the repetition of the forms of moving by all more outer or preceding spheres within those consecutively more interior.

And we also idealize the principle that each lower or more interior planet-sphere within the solar system is plus complex compared with its predecessor, in virtue of being subject to the attractive force of an additional *super-centre of motion*, — the nucleus of its predecessor. This, because the ideal includes the perception that the orbital revolutions of the primary planets are *projections* of the axial rotations of the sun; while the orbital revolutions of the secondary planets are *projections* of the axial rotations of their respective primaries, each being matured in the degree its axial rotations or self-motivities are increased. These, of necessity, increase in the ratio of their increase in freedom to move by a corresponding increase in distance from their respective sub-centres of motion, — proximate and ante-proximate.

16. Again: by regarding the nervous, the lymphatic, the sanguiferous, and the cephalic systems in animal forms as inter-repetitions of corresponding systems of circulation in the earth-sphere, we idealize the principle, that, although the ultimate essence of substance is

homogeneous and interchangeable as regards conditions, yet the essential constituents of the interforms of each system must accord in size, shape, and mobility, with the pores of the channels through which they are endosmosed and exosmosed. Thence regarding the contents of the alimentary canal as the correspondent of the earth's substance, the essences of which are so comminuted that they enter and pass through each more refined system, while those of the most refined or cephalic system are so coalesced that they enter and pass through each less refined system,—the roots and branches of all these systems being co-extensive, and in close juxtaposition,—we idealize the principle that fitness to enter the highest or cephalic system is not determined by *distance* from the lowest, but by the *grade* of refinement attained by the substance of the forms involved, which necessarily includes corresponding mobility or maturity and permeability by their fruital essences. That is, the essences fruital to the forms or circulating media of the general sensor-motor system are plus developed, but minus complex, in the degree those fruital to the circulating media of the lymphatic system are plus complex, but minus developed. The fact that each needs the conditions possessed in excess by the other reveals the wherfore of their affinity and combinability.

Now, as all the essences of our organisms are alike nutrient to its motive powers, and alike fruital to the elements of forms external thereto,—the inherent tendencies of all alike being to grow up to their respective parental conditions,—the dynamic force of each form is necessarily proportional to its degree of development, or distance from *incipiency*.

While we are forced to regard the essence of substance as self-conditioned in the sense that its essential forms of moving include the infinities of space and time, yet, in its local conditions as the substance of our self-moving organisms, we must take into account its local tendencies, hence must take into account that the organs of sense through which the nutrient essences involved are assimilated are relatively plus and minus mature. Those of general sense, the pores of the serous membranes of the entire organism, are plus developed, but minus complex, compared with those of taste, smell, seeing, and hearing, which lessen in development in the order named, but are correspondingly more complex.

The serous membrane being the first organ of sense developed,—primarily the blastoderm of the lowest animal forms, and that of the lowest stage of all animals *in ovo*,—the essences it absorbs are the most mature, but on the lowest plane of complexity. The next organ developed in the animal series being a mouth, the essences absorbed through its membranes, however extended the canal of which it is the portal, are plus complex compared with those absorbed by the sense of feeling,—the general surface-pores,—but minus developed. Those absorbed through the gillous or pulmonary air-cells of animals endowed with smell, in addition to touch and taste, are less matured, but more complex, than those absorbed through either touch or taste, its parent senses. The empyreal essences absorbed through the afferent nerves of the optic ganglia are minus mature as illuminants on the human plane compared with the maturity of the tactiles, the odorants, and sapients that cognize the tactile, the odorous, and sapid qualities of things,

but corresponding plus complex; while they are plus mature and minus complex compared with the maturity and complexity of the audicnts within the auditory ganglia that cognize the sonorous qualitics of things. This is comprehensible only as we perceive that different sensations are procreated by essences moving *reflectively* with different but correlative degrees of rapidity, all of which degrces are cognizable by the nerves of general sense as difference in temperature and tangibility. This is self-evidence that they are homogeneous as substance, but that the central and super-central nuclei of the spherules they become rotate, or tend to rotate, with degrees of velocity corresponding with their inherited mobility or spacial freedom which determines their degrees of comminution and coalition. The rhythmic actions and re-actions of these nuclei, the innermost pulsations of life conceivable, are plus complex in the order of their increasing rotivity as separate enspherences.

But, when specialized as definite ranges of motive force by aggregation as organs of special sense, each organ is necessarily the matrice of entities endowed with sensc-perceptions corresponding with the *prestatic proclivities of its essential constituents*: hence each organ as a special matrice is plus mature and minus complex in the order of its earlier advent, because constituted of essences correspondingly plus mature condensed as a less motile but more complex organ. That is, external thought-germs become introverted as the rootage of mental insight,— power to percive the external. The fact that the heat-conducting properties of volatile, liquid, and solid substances, increase in the order named, indicates that the sun's empyreal rays became com-

plexed, first as volatile, next as liquid, thence as solid elements. All these are increasingly better conductors of sound.

While the empyreal grade on the plane of meteoric water is the only conductor of light cognizable by human sense, yet the rhythmic pulsations of its vital heat, like the rhythms of musical tones, penetrate to the centremost of every form in nature. And while the odorous and sapid qualities of things which are respectively aerial and liquid are best conducted by substances essentially in the same condition, yet the pulsations which each procreates beat in unison with those of every other grade. Special sensations are as inseparably correlated as the general sensations of temperature, which embrace the recognition of every degree of motivity between the annihilation of organic life by cold or collapse, and its annihilation by heat, or disruption of its elements. Just as different substances are fused by different degrees of heat, so the essential qualities of things are sensibly expressed by the different rotative force, and different orbital range, of their essences, constituent and fruital, and which become like qualities within the organs by which they are perceived. Each organ of special sense is responsive to the successive octaves of a different range of motive force by the sensibly expressed essences it subjects, which force would destroy any of the other organs, were not its recognition impossible. For example: were not the rays of heat from bodies radiantly luminous intercepted by the deposition of their cruder spherular nuclei or sunules on the successively more refined membranes of the successively more interior lenses of the eye, their force at its focus would utterly destroy the organ.

The eye is adapted to the greater range, but less complex vibrations of light; the ear, to the lesser range, but more complex vibrations of sound; the organs of smell and taste, to the ranges of odorosity and sapidity, down to the sense of touch or contact. This prime dual sense of externality is the base and super-base of special sense, just as black is the base and super-base of color. The ranges of taste and hearing are directly opposed, as are the ranges of the red and blue rays, the range of smell, like the yellow rays, being intermediate; while the range of sight corresponds with the range of white light.

By regarding the modes of motion by the surface essences of objects as the *sensible expression* of their different abstract qualities; thence regard the modes of moving by the essences projected from our nerves of sense, when set in motion by combination with the former, as *sense-perception*, we recognize ideals or concep-tive creations as conjugations of essences plus matured as sensible expression with those plus complexed as sense-perception; the former (functionally male) being minus complex in the degree the latter (functionally female) are minus mature. In virtue of the plus expansiveness of the basic or female essences and the corresponding plus condensiveness of the super-basic or male essences, their tendencies to move toward and from their respective sources of supply, internal and external, alternate rhythmically.

When combined as forms representing the images of the objects modified by the sense-perceptivity of the subjector, the female germs contribute the minus spaciality and plus ex-centrality lacking in the male germs; while the male germs contribute the plus spaciality and centrality lacking in the female germs.

17. Educating the senses jointly and severally by a normal supply of the essences of external forms of substance, relatively counter-tending, and which, when equilibrated as their normal growth, inherently tend toward, thence from, the parental sources whence it is normally supplied as the alternating needs of each sex demand, is all there is of education; which education, *in being the growth of the mind's static motive powers, its subjections, is all there is of the growth of its embodiment.* In virtue of being aggregations of the metaphysical or atmospheric essences of their commensal forms (whose modes of motion represent the essential qualities of those to which they are respectively fruitful), sentient, physical, or nuclear organs—the sum of the sense-perceptive agents these sensibly expressed essences have become within each—are capacitated to subject by cognition like metaphysical essences or thought-germs on a more interior and more complex plane of sentience when atomically atmosphered at somatic death—a more interior birth—by its more refined grade of essential substance.

The more matured but less complex metaphysical essences in becoming inborn as the physical on our plane of sentience, thence growing up to the plane of sensible expression, become additionally complexed by inbirth within a more interior sphere of sentience, whether inborn therein as segregate or abstract ideals, or in their aggregate consensuality as sentient organisms.

Inasmuch as during maturation they attain no additional centre from and toward which they are forced to move alternately, their complexity is not increased. Viewed in this light, we idealize the principle that the

prime surface essences of physical forms whose modes of moving express their essential qualities, and which become inborn directly or substitutively as the general and special sensations of other physical forms (their sole nutriment) are *per se meta-physical* entities, which are *beyond* the physical only in the sense of being *volatile* or *atmospheric*, that is, in the sense of having sufficient space in which to move atomically in accordance with their inherited tendencies *under their existing degrees of super-pressure*. The inherited tendencies of their sub-surface counterparts are identical, but unexpressed, save as expansive or centrifugal pressure.

Directly these whilom static essences are volatilized, they combine atomically with the essences of like elements surrounding them, to which they are basic; and it is the empyreal essences of the elements they constitute — earthy, aqueous, aerial, and super-aerial — that are assimilated by other complex forms as the normal nutriment of their organs of general and special sense.

Now, by regarding the essences through whose modes of moving (objective and subjective) the universe of forms is revealed and perceived, as their specific elemental germs, we idealize the principle, that, inasmuch as these essences are the whole of nutrition, they are of necessity not only intrinsically alive and inherently sentient, but are *self-creative as forms both on the physical and on the metaphysical plane*; that is, they *form themselves*; those of touch, taste, smell, sight, and sound, being respectively on the earthy, the aqueous, the aerial, the aquo-vaporous, and super-aerial planes of maturation.

18. If, as we are forced to admit, the metaphysical or prime atmospheric essences that constitute the “repre-

sentative images" of objective forms are inter-repeated as less mature physical forms, whose metaphysical or representative essences are, in turn, inter-repeated as still less mature, but correspondingly more complexed, physical forms, so on *ad infinitum*, then ideas *are forms of substance*, whether regarded as metaphysical or physical, subjective or objective.

Viewed in this light, we perceive that the "complex idea" conceived by the recognition of a physical body and its "essential constituents," which were termed by Locke its "nominal essence" and its "real essence," are one and the same. The sole difference consists in the different conditions of the same substance. The so-called *real* or sensibly expressed essences, when inborn within the organs of sense, are simply transformed into the "representative images" of the same *real* qualities on a more complex but less mature plane — that of sense-perception — within the recipient organism. If this view of nature's laws be correct, there is needed no further search for the origin of life and sentience, or for the origin of the various species of forms through which these attributes are variously expressed, and by which they are as variously conceived.

Again: by regarding the refinement and complexity of the essential constituents of forms as due to increase in distance from the centre and sub-centres of infinite gravity, and their continuous inter-repetitions within consecutively lessening areas of space, we idealize the principle that the increasing axial velocity of the primary planets in the order the sun's rays are increasingly *diffused* is *per se* an increased *infusion* of their empyreal essences; their slower axial respirations in reverse order being an infusion of equal quantities cor-

respondingly increasing in density. In like manner, animals at higher altitudes, or when, by increased activity, they radiate an excess of their empyreal essences, breathe more rapidly in order to *infuse* quantitative equivalents of those *diffused*; the reverse being true of animals indigenous to lower altitudes, or when the higher are at rest. And we also idealize the principle, that, although the quantity of substance within the spaciality of each and every sphere of gravity is unalterably determined by its distance from the prime nucleus of formation, yet the *clearness of its atmosphere* is proportional to the axial rotation of its nuclei, spherical and spherular, which also determines the axial velocity and transparency of the superficies of its atmospheric stratifications, and also the amount of heat and light evolved.

This increasing freedom to *express* the expansive elasticity inherent in their constituent empyreal spherules is *per se* the ability of the planet-spheres to increase their internal heat and light in the ratio of their increase in distance from the sun; the visible sun of each more outer sphere being a more outer stratum of the sun's photosphere.

In accordance with our perception of their functional correspondence or reciprocal interchange, we regard the strata of elements that make up our world as the basic fruitage of a higher stratification nucleated as their substitutes on their embryonic plane; their atmospheres being fruitful to the elements of a still higher stratification nucleated as their substitutes on their embryo-atmospheric plane,—our plane of sensible expression. That is, the sun's direct and reflex rays are continuously being moulded into female and male germs;

during their passage through the sunward and anti-sunward halves of each stratum of each stratification, which, when inseparably combined as cmyrical spherules, express their complexity in the order of their ensphercence by like germs moulded by passing through the counter-halves of consecutively higher strata and higher stratifications.

In extending these counterpart relations, we must bear in mind that it is only the inverted atmospheric strata of the planet-spheres that revolve within the nuclear organism of the solar sphere. Their respective quantitative equivalents of substance, correspondingly expanded, constitute a series of atmospheric stratifications external thereto, whose every wavelet of vital force, as well as those caused by their annular circlings, is rhythmically responsive to those of their nuclear counterparts, although billions of miles distant. If inseparably interlinked by currental systems—the roots and branches of whose vessels anastomose, as do those of the human organism, then the ascension of the interforms developed within a lower into a higher system, by the translation of their essential organisms thereto at somatic death, is not determined by *distance*, but by fitness *in being organically conformed to its planes of sense-perception and sensible expression*. As conformation is determined by sense-perception, the plane of sensible expression recognizable by each sentient being *is necessarily its counterpart*. This, because the modes of moving by the essences nutrient to the organs of sense that make up the entire organism must accord with the prestatic modes of moving by their essential constituents, with which the latter become conjugally combined. Every being necessarily gravitates to his or

her own plane of perceptivity, whether or not satisfactory. If not, the universal *desire* to be happy, which is identical with a desire to be good or harmonious, is alike the passport of each and all to the better and better conditions necessary thereto.

CHAPTER XIII.

1. To question the definite incasement of the earth-sphere is to question its contradistinct motive powers alike in the present and in the past; motion and force being alike impossible without a central and a circumferential base. Starting with the assumption that the nervous system in animal forms consists of their most and least condensed essences, which become aggregated as their most solid fulcra and their most motile fluids, and that this system is the first to become incipient, the alimentary, lymphatic, and sanguiferous systems being built of these essences condensed as the needed sentience of each requires, we recognize the presence of substance intrinsically sentient in the circulating fluids of each and all. And wherever we find solids, whether in the mineral, in the vegetable, or in the animal kingdom, we recognize them as aggregations of these most mobile and most subtile fluids. If we regard the sentience of a form or organism as its aptitude to receive and to respond *significantly* to impressions communicated to it in any way by other forms, then the sentience of the substance involved is in virtue of its being so conditioned that its intrinsic elasticity or vitality is manifest in such directions as the necessities of the form it constitutes demand or compel. As these conditions include

the specific arrangement of its essential substance, which necessarily determines its every internal and external motive tendency, its outreachings after, and its reception of, whatever is in any wise nutrient to its form, as also the tendencies of its ex-nutrient or fruital essences, it is always in harmony with these conditions, because it is an *expression* of the tendencies it inherits from the forms to which its substance is fruital, modified by the conditions that determine the functions of the form it has become. In order to account for its essential qualities, we must take into account, not only the tendencies of the elemental germs of its specific parent forms that combine as the counter-bases of its specific form *in embryo*, but the tendencies of all its nutrient essences, pre-natal and post-natal. Every animal, vegetable, mineral, and gaseous compound, as also every element of each, *inherently* attracts whatever is in harmony with its essential tendencies, and repels whatever is not in harmony with them. Not only is every element *of itself* capacitated to select its associates, always preferring such elements as are best adapted to supply the modes of moving lacking in itself; but if, per force of the absence of such, it combines with one or more of lesser disparity, it is capacitated *of itself* to sever its coherence therewith, and to combine with those of greater disparity in mobility, when brought in contact under favorable conditions; the nuclei of the intermediate element ascending by rotation as free heat, or descending by collapse as latent heat. The affinity between the essential germs fruital to the two sexes of a species is purely in virtue of their extreme opposing tendencies consequent upon the extreme condensation of the female or central essences and the extreme expansion of the

male or super-central essences. And it is purely in virtue of this extreme motive tendency toward each other, when combined as the essential representatives of the parent structures on the embryonic plane, that the essential germs of lesser affinity which combine between the former as their embodiments are held together as form, or rather as the vascularity within which the intrinsically dynamic elements of the essential organism circulate. As all the vital germs constituent to the essential organism are endosmosed through the outer and inner and intermediate layers of the prime or "germinal membrane" of the vascular organism, the pores of which remain intact as the only ports of birth during their common development on our plane of sense-perception, they *can* and *do* become exosmosed, or outborn, by a reversion of their condition; that is, by having become expanded on the mature plane in the degree they were primarily condensed on the embryonic plane. The intactility of all forms of force, and of the stratifications they constitute, is in virtue of this law of greater and lesser affinity: otherwise there could be no resurrection of the living organism from the counter-easts within which the motivities of its ultimate constituents are moulded by the *re-actions of like ultimates in a vascular or conductory condition*. The opposing forceitiveness of oxygen and nitrogen combined as air is slight compared to that of the elements of hydro-carbons, whether solid or gaseous; because, if solids, they are below, if gases, they are above, the specific altitude of air. So, while the elements of air may be and are separated by the faintest breath, the elements of hydro-carbons can only be separated by the interposition of aerial oxygen and nitrogen, which

requires intense heat. When fluidized by heat, the oxygen forces them apart by combining with both; while the mediate rotivity of the nitrogenic spherules keeps the two new compounds,—carbonic acid and meteoric water—from resuming their former relations. The former gas, being heavier than air, descends; the latter, being lighter, ascends. The decombination of the elements condensed as the earth's solids and liquids, and their recombination within the aerial stratum as intermediate elements, is continuously going on through the agency of the heat evolved by the combination of its rays with those of the sun inborn within its atmosphere.

2. The fact that the earthy and aqueous systems of its earlier and simpler animal forms are repeated in the more complex, between which the latter's aero-sanguiferous system is developed, is the basis of our assumption that the earth-sphere progresses by repeating the strata of elements constituent to its earlier and simpler stratifications within each later stratification, which is rendered more complex by the development of an intermediate stratum compounded of the elemental germs fruital to the nuclear and atmospheric organisms of earlier strata; each succeeding stratification becoming more complex by the repetition of the strata of its predecessors and the development of an intermediate stratum compounded of the fruitage of all the strata above and below its altitude. The fact that aerial elements are present in higher animals, and are not sensibly present in such as represent a past and a prior-past world, is conclusive evidence that the acme of complexity in every sphere of gravity or form of force is *between* its equivalents of nuclear and atmospheric, or female and

male elements, hence that the interforms constituting each culminate sphere or form are *in ovo* the innermost and outermost essences of their nuclear and atmospherie organisms *combined as the constituent elemental spherules in ovo of said interforms*, the subsequent growth of which eonsists in the combination of counter-sexual or counter-foreitive elemental germs of ever-lessening disparity in spaciality and tenacity *between the nuclei and atmospheres of their prime specific spherules*. This ever-lessening counter-forcitiveness between the central and super-central essences, by which means their specific germs become embodied, accounts for the greater cohesion of the elements of the earth's earlier surface-forms, animo-mineral and animo-vegetable, compared with the lesser cohesion of the bodily elements of its later and more complex animal forms. The disintegration of bodily elements is effected by the interposition of counterpart essences of greater spaeial disparity; while their specific soul-germs, *in being the acme of essential counter-forcitiveness, are utterly inseparable*: hence when their nuclear and atmospherie organisms are maturely embodied within a lower stratification, or are forced to separate by abnormal conditions, their essential organisms, which are functionally fitted therefor, ascend to a higher in accordance with the principles of *outgrowth through ingrowth*.

The repetition of the outermost forms of motive force within the innermost, although exceedingly difficult to describe, is microscopically revealed in the systems of circulation in the human organism. Not only do the inleading seetions of its venous and arterial vessels repeat the structure and funetions of the systems of circulation in the male and female organisms of all its

ancestral speeies in the order of their later advent as the common offspring of their lower systems (the alimentive and lymphatic) in the sense that each more inner seetion involves the meehanical powers of every more outer seetion *seriatim*, up to those doubled over as the dorsal and ventral, or male and female hearts, in which the vascularity of the entire organism is repeated on the intermediate plane of maturity in like manner as it is repeated in the uro-genital organs on the sub-mediate plane, but all are repeated as the vaseularity of the cephalie system on the super-mediate plane.

If, as assumed, the eephalie system is the common offspring of the uro-genital and bronehio-sanguiferous systems and their atmospheric counterparts, the organism's aerial and aqueo-vaporous strata, then special sensations, the common offspring of the brain and its atmospheric counterpart of super-aerial or sensibly expressed thought-germs, are what the immature germs of general sense on the iminature physical or uro-genital plane *become* when matured up to the metaphysical plane. If, by atomie combination with like germs inherently more and more motile from eonsecutively higher or more spaial strata, they attain the ability to aseend as sentient entities to the outermost plane of maturity within our stratification, whenee their entire substance, nuclear and atmospheric, priorly descended, then, by parity of reasoning, an extension of the same genetic proeess would elevate them to every more spacial altitude through whieh essential substance is continuously deseending to the incipient plane of formation. By regarding the entities within these different systems as iniatiure representatives of the sentient beings indigenuous to corresponding external strata of eirculating

fluids, we have a clew to the hitherto inexplicable effects produced within our organisms through light and sound projected from luminous and sonorous bodies not in visible contact with them. When the vibrations produced in our atmospheric fluids by abnormal sights and sounds, which the radiatory force of their bodily emanations initiate, impinge upon the afferent nerves that encircle and permeate the entire venous system, its capillary inlets contract, thereby prevent the influx of normal quantities of arterial blood. Under normal conditions, the alternate contractions and expansions of these inlets, consequent upon the rhythmic action and re-action of normal atmospheric vibrations, are synchronous with the alternate contractions and expansions of the auricle and ventricle of the arterial heart, by whose re-active force under the control of the efferent nerves the blood within the arterial vessels is returned to their capillary outlets. Blushes, reddening with anger, with guilt, or with fever-heat, are examples of the retention of an abnormal quantity of blood in the arterial capillaries, consequent upon an abnormal contraction of the inlets of the veins under abnormal excitement, which prevents a normal flow of blood to and from the venous heart.

Per contra, the actions of our organs of sense being purely reflex, that is, through the nerves associated with the arterial system, the pallor caused by such sights or sounds as are calculated to intensify fear, anger, resentment, sympathy, or chills, results from an abnormal contraction of the inter-repeated arteries, which prevents a normal flow of blood to the surface. We are aware that it is difficult to prove that each form, like our earth, acts and re-acts in response to

corresponding actions and re-actions projected through its atmosphere in consequence of definite alternations of plus and minus pressure upon opposing portions of its superficies. We once had an admirable test of atmospheric "materialization," in the case of a leeeh that died from want of fresh water in a dark closet. Under this condition of darkness, which we regard as indispensable, there had formed around it a jelly-like substance, about half its diameter in thickness, the surface of which was as smooth and as evenly developed as that of its body.

The transition and deposition of this super-nuclear substance must have been effected by currents corresponding in tendency with those by which its body had been built up.

But the fact that the times of the revolution of the planets are proportional to their mean distances from the centre of solar gravity is the crowning proof that all the motive powers of our sphere necessarily involve definite degrees of spacial and timal disparity, *its relative proportion of nuclear and atmospheric substance being utterly unchangeable*. Each planet, the force of whose substance is predominantly centrifugal, has not only its counter-equivalent of atmospheric or centripetal substance; but its entirety as a stratification of the nuclear organism of the solar system, whose substance as a whole is predominantly centrifugal, has its counter-equivalent stratification of centripetal substance within the outer or atmospheric organism of the system of solar gravity as a whole. Viewed in this light, we can conceive of nothing more substantial than the solar system. And, by parity of reasoning, a like substantiality is perceivable in every department of Infinite

Being. Now, by regarding the earth as an atmosphered or cellular form floating between impassable boundaries, and conformed, as a whole, to the area of space involved, it is readily perceived that the relative position of its atmospheric superficies as regards the sun is unchanged, however numerous the rotations of the earth — its innermost organ of centrifugal force — around its own centre, in which all its nuclear forms share. The relative position of the superficies of these forms is continuously unchanged as regards the maternal and paternal orbs whence they draw their basic and super-basic nutriment, however numerous the rotations of *their* vital fluids. We can also conceive of changes in its form consequent upon changes in its spacial and timal conditions, of its lessening elongation and corresponding increase in height and width in proportion to the earth's increase in axial, and decrease in orbital velocity during the solar centuries since its incipiency. And we can also conceive of its gradual erection as a sphere, from an anastomosing condition, in the ratio of decrease in altitudinal super-pressure as it gradually approached a more medium distance between its counter-parent sources of nutrient substance.

3. The structure of cometary bodies is a clew to the structure of planetary bodies, taking it as granted that the luminosity of their atmospheres is due to their intense orbital velocity; while the rarity of their nuclei is due to a corresponding deficit in their axial velocity. Hence our assumption, that, during the nucleation of our planet-sphere, there was, as there now is, a continuous increase in disparity in density between its nuclear and its atmospheric elements; the density and opacity of the former increasing in the ratio the rarity

and transparency of the latter increased in consequence of the increased axial velocity of its nucleus and of the nuclei of its atmospheric spherules in the ratio of their decrease in orbital velocity. In accordance with these mechanical principles, its substance must have increased in the ratio its orbit increased in circumference. If, as assumed, its relative longitude decreased in the ratio of its decrease in orbital velocity, it must have increased in width and height correspondingly. As regards the especial structure of the earth-sphere, we do not idealize it as that of the sum of those of its interforms in any possible arrangement as individualities, but that its general conformation is and ever has been the inevitable result of its spacial and timal conditions.

As their matrice, it necessarily includes the pabula of each and all; each, in the order of its later incipency, subsisting upon the ex-constituents of its predecessors in like manner as blood-corpuscles subsist upon the germs fruital to those in advance and in the rear, or as the later links in a chain of polyps assimilate the fruitage of *their* predecessors and successors. Our planet-sphere is as really dependent upon the counter-mature essences fruital to the earlier and latter planet-spheres above and below it for its nutrient germs as is each mediate polyp upon those of its predecessors and successors. As comets evidently pervade every department of the universe, some moving with lightning speed around the centre of the solar system within its planetary limits, others evidently circulating to the periphery of its outer atmosphere, while the orbits of others connect it with corresponding systems of stellar orbs extending from the innermost

endlessly on toward the outermost limits of formation, we regard them as prototypal of the nervo-vital fluids within animal organisms. These, in becoming nutrient to every pulsating cell in each, breathe into each the breath of life. If the fluids within our nervous systems that respond with the speed of thought to every need of our organisms, whether or not prompted by our conscious volition, be indispensable accessories to their incipiency and development, by parity of reasoning, agents with corresponding functions are equally indispensable to the organism of nature, the development of whose constituent forms *is its development.*

4. The sentience of our organisms is self-evidence of the presence of agents endowed not only with sentience, but with power to move with the speed of thought. There can be no higher proof of their presence than our power to feel, to sense, to think, which is the *effect* of their efficiency. So the presence of sentient organisms constituent to the organism of nature is self-evidence of culminating agents with corresponding functions, whether or not all the motivities involved, the apparently evil as well as good, be prompted by the conscious volition of the Infinite *Ego.*

As life and light are born of death and darkness, so apparent evil is the basis of the real good, it matters not the terms applied to designate the causes or the effects. If, as assumed, the earth's substance, from its surface centreward, increases in density in the aggregate in the ratio the density of its atmospheric substance decreases ex-centreward, and that this disparity in density has increased in the ratio of its increase in distance from the centre of solar gravity, then its corresponding expansion

has conditioned the penetration of atmospheric essences to depths corresponding with their increasing subtility down to its centre, thence their reflection therefrom in this continuously increasing ratio. As the force of these reflex rays, combined with that of an equivalent of direct rays, *now is*, and always *must have been*, the measure of its rotary force, we perceive that its increase in substance, in refinement, in inter-complexity and inmobility, is necessarily due to a corresponding increase in freedom to move, freedom to *express* its static proclivities.

The fact that the post-natal activity of free-moving animal forms increases in the ratio of their increase in substance, and freedom to move up to maturity on our plane, is incontestable proof that the expansive elasticity of their essential embryonic germs, latent as their inherited activity, is in the ratio they are condensed or immobile, which is *per se* immaturity, and is equal proof that the nutrient germs that constitute their vascular forms are increasingly mobile up to the mature stage; and the fact that their decrease in activity thenceforward is in a like ratio is equal proof that the nutrient germs they assimilate are decreasingly mobile. Being involutions of the entire elemental representatives of the earth's atmospheric forms plus and minus condensed as the counter-functional representatives of their female and male parents on the nuclear or earth plane of maturity, the elemental spherules, or atmosphered spherular nuclei that make up each form *in embryo*, are counter-condensed as the nuclear counterparts or correlatives of the later and more mature atmospheric spherules,—actual germs,—which become additional to the growth and motility or maturity of their essential organismis,

thereby changing the form and functions of their objective organisms. The spherular constituents of the latter organisms, the sum of the vessels through which the essentially vital agents circulate, are identical as substance with those constituting the essential organisms; but in becoming counter-condensed as the central and super-central fulera of the latter, in the sense of being moulded into their embryonic tendencies, the former are on the embryonic or nuclear plane of maturity, while the latter, the parents of the former, are on the mature plane. This is comprehensible if we but perceive the mechanical necessity of the inter-repetition *seriatim* of each preceding form of force within each succeeding form of force, and perceive that the super-base of each sphere and stratum of gravity moulds the motive tendencies of the centripetal or male germs; while the base of each moulds those of the centrifugal or female germs. In applying these principles to terrestrial gravity, while we recognize the extreme disparity in density between the innermost and outermost stratifications as provisional or parental to the lessening disparity in density between the nuclear and atmospheric counterparts of succeeding intermediate or inter-repeated stratifications, we perceive that this lessening disparity in density or immaturity is but a repetition of the embryonic condition of the germinal membrane of the entire sphere prior to the gradual foldings and convolutions of its innermost layer and the expansion of the outermost, which conditioned *their ingrowth as its outgrowth*, in the sense that their counter-tending germs combine as its elements at every point within its gravitational limits.

5. If, as we are forced to admit, heat increases in the ratio the rotivities of the empyreal essences present in-

crease above a mediate degree of rapidity, and that cold increases in the ratio their rotivities decrease below it, we perceive that, theoretically as well as actually, the temperature of our stratification lowers equally in the aggregate above and below the earth's surface, and bilateral to the plane of its equator. That is, the centre-most substance of the earth is immobile or immature from *lack* of space, in the degree its outermost atmospheric substance is immobile or immature on an older plane of outformation from *excess* of space. Thence recognizing increase in maturity as identical with increase in freedom to move, in the ratio of distance in time as well as space from the embryonic or incipient plane, we perceive that the motivities of the spherules that make up the vascular organism of the earth's surface-forms — its organs — necessarily lessen above a mediate degree of maturity, just as do those of its atmospheric spherules as a whole at a mediate distance above its nuclear surface, which is manifest as increasing cold; while those of their essential organisms, its interior vitality, increase correspondingly.

This decrease in activity by animal forms as they near the winter of age involves the same principles of reproduction as the decrease in vital energy by vegetables as winter approaches. Whether it be the introversion of the elemental germs of annuals as their specific seeds, or those fruital to annual leaves as their specific buds, which, like seeds, include those of the entire tree, it is the result of a lessening of their expansive elasticity, or ability to radiate them as essential fruitage, in the ratio the atmosphere surrounding them condenses or cools subsequent to the mature activity of summer heat. Every animal, like every leaf, is a repre-

sentative of the mature and post-mature, or *post mortem* planes of being: hence the descent of its representative on the mature plane to the immature or pré-specific plane is the correlative, thereby *conditions* the ascent of its representative of the post-mature plane to the altitude whence the essential germs involved descended in a diffused or segregate condition. We must bear in mind that the growth of the earth-sphere, like that of its interforms, is a continuous extension of its gravitational limits by the continuous subjection of essential substance of ever-increasing mobility or maturity external thereto, counter-conditioned as the counter-bases of compounds and complex forms of ever-increasing complexity in modes of moving.

This extension of its static motive powers to increasing distances, and in an ever-increasing number of directions, is effected through the agency of its essentially dynamic constituents; equal quantities of which are continuously being counter-condensed as the innermost and outermost of every spherule of its formation, each of which, in virtue of its inherited atmospheric tendencies, is continuously growing above its lower conditions.

6. Throughout the entire series of terrestrial forms, there is unmistakable evidence of their gradual erection, first from a coiled, thence from a horizontal position. The erection of its latest and most complex mineral, vegetable, and animal constituents, could be effected only by a gradual erection of the earth-sphere as their matrice, and also of its orbit around the nucleus of its oblate sphere of subsistence. That the horizontal layers of minerals within the earth's sub-strata are provisional to its more or less erect coral formations is self-evident

from the fact that the latter are superimposed upon the former; the same parental conditions being necessary to the development of present coral formations. The formations of like horizontal layers in the present are effected by the same counter-forces as were causative to their formation in the past, their efficiency being continuous. In addition to like discoveries in other localities, it has been ascertained, that, on the Florida Reefs, the water is about ten inches higher in September than in January (about the time of the earth's perihelion), and that, during the ebb, the corals — hundreds of acres in extent — are all killed down to the lowest water-level. The cause of this ebb and flow is assumed to be the counter-pressure of the sun's perpendicular direct and reflex and intermediate oblique rays upon the earth-sphere as a whole during its annual revolutions.

The formation of these layers of coral — the thickness of which corresponds with this change in the water-level of the earth's annual tides, and between which is a deposit of *débris* of like calcareous substance as that constituting the external skeletons of the defunct polyps — fully and rationally accounts for the formation of the successive layers of porous limestone so prevalent in what are termed "basins," evidently ocean-beds in a past era. The fact that these surface corals immediately sprout and grow during the rising tides, to be again destroyed at their ebbeings, accounts for their succession during the revolution of the *solar system's tidal waves*, recorded in the rise and fall of the earth's continents and islands. The advent of erect coral-trees was the result of an increased growth of the aqueous stratum, as was the advent of erect vegetable and animal forms the result of an increased growth of the

aerial stratum; the presence of their horizontal and semi-erect predecessors as matrices for the moulding of their basic germs being as indispensable to each and all as is the presence of these past and prior-past horizontal beds of mineral, all of which are provisional to the erection of their culminating matrice. Evidently the organically defunct vegetable forms that make up our coal-fields became incipient, as creeping vines on the beds of the earth's ancient lakes and lakelets, thence, during incalculable ages, were provisional to like but increasingly erect species as the aerial elements continued to increase in quantity and height above them; all intermediate species being produced and reproduced as the commensals of their culminating types of form *as in the present*, all varying in structure and function in accordance with the increasing complexity of the compounds upon whose essences they subsisted. As their essential germs became the bases of the elements that constituted their common pabula, just as is the case with all forms in the present, their constituent germs necessarily varied in accordance with the variation of their nutrient germs *per force of these correlations*.

7. As all the kingdoms of form must have been included in the specific archetype of the terrestrial organism *in embryo*, all were alike typally existent, yet could become expressed as such only as it attained the necessary spacial and timal conditions.

Starting with the least degree of spacial freedom, the empyreal essences were the first volatilized, and the first re-condensed: hence, as regards predominance, animo-mineral, thence animo-vegetable forms preceded individuated or free-moving animals; the creation of all alike being in accordance with their ability to resist

atmospheric pressure. When the aeme of size in a horizontal position was attained, the earth's gradual aseent into increasing freedom to move conditioned their gradual erection as kingdoms of form *through the erection of their common offspring that represent them in the present.* Within the sluggish pools and murky shoals between the gradual upheavings or sudden disruptions of the earth's mineral inerustations, faney pictures mighty forests of tree-vines of every size and shape, monstrous and minute, sparsely intermingled with which are their animal commensals, equal in their proneness to creep and crawl, to hug the earth, and breathe its damp air through their ventral pores, as do their representatives in the present, thereby counterpoising the rarer gases forced in through the dorsal and lateral pores. Still less alive were the more uncouth monsters that crept beneath the surface of these embryo oceans. And yet the sentience of each was equal to the need that conditioned its existenee. The earth-sphere needed no higher representatives at this stage in its development. It was sufficient that its breath of life was being *forced into it*, as is that of its fetal animals in the present. From the fact that the pre-natal position of free-moving animals is the reverse of their post-natal positions as regards their proximate matrises, we infer that the earth-sphere as a fetal constituent of the solar sphere is in this *reverse* or *embryonic* position; the same being true as regards the position of the solar sphere within its proximate ensphering sphere. That is, the position of the earth-sphere as a whole being unchanged as regards the sun (the nucleus of its proximate matriee), the same being true as regards the relative position of the solar system and of the eentral

organ of *its* proximate matrice, the interforms constituting its ventral hemisphere became priorly existent in the sense that their substance was priorly condensed as such compared with the substance subsequently condensed as the interforms of its dorsal or anti-sunward hemisphere. This accords with their lesser and greater distance from the centre of solar gravity. On the same principle, the lower or mucous layer of the germinal membrane of animals *in embryo*, that nearest the yolk (the representative earth), the prime folds of which become the alimentary canal within which their monstrous and their minute interforms are developed provisional to the development of intermediates within the higher circulatory systems, is the first to become visible.

Being plus condensed, the monstrous and minute forms within the earth-sphere's sunward hemisphere were priorly developed ; those within the anti-sunward hemisphere being simply typal in the sense that the germs moulded *in transitu* through them were combinable as intermediates. The fact that the ventral hemisphere of animals is continuously correlated with the earth during the gradual erection of the series from the simplest creepers to the erect human, the post-natal position of whose ventral hemisphere is foremost, and its anterior extremities anti-earthward, is our license for assuming that the anterior extremity of the earth-sphere is erected toward the sun, and that from a solar aspect it moves *backward* in the sense that its ventral hemisphere is castward during its relative advance around the maternal sun westward, while its ventral hemisphere is foremost as regards its advance around its paternal sun. In like manner, our moon moves backward or westward from an earthly aspect ;

while it moves eastward as regards its advance around the sun, its paternal progenitor. In the animal series, the gradual elevation of the head corresponds with the gradual advance of the heart from near the posterior extremity — its position in the lower mollusea — toward the anterior extremity. This gradual advance of the heart headward culminates in the erect human organism, and reveals the position of the earth (the central propulsive organ of the terrestrial organism) and also that of the sun (the heart of the solar organism); that is, the earth is in the foci of terrestrial gravity nearest the sun, and the sun is in the foci of solar gravity nearest *its* sun. This accords with the assumption that each *form of force* outgrows by growing within itself *seriatim* as its organs miniature representatives of its every preceding or parental form of force. This mechanical necessity is clearly revealed in the evolution of the human organism, in which the organs, or consecutively more complex combinations of mechanical powers of all preceding animals, culminate, — whose organisms are the organs of the earth-sphere. On its inter-earthly plane we find the convolutions of the alimentary and those of the pancreatic duct (its representative earth and moon) developed between the liver and spleen (the representatives of the earth-sphere's maternal and paternal suns). These are all repeated or re-grown on the aqueous plane as the culminate organs of water-breathing animals, just as their growth on the inter-earthly plane represents the growth of the culminate organs of inter-earthly animals in reverse order. That is, the "renal bodies" represent these parent suns on the inter-earthly plane within the aqueous stratum of the human organism; while the

“kidneys” represent them on the aqueous plane, between which re-repeated suns the counter-sexual organs of generation—the representatives of the earth and moon—are re-repeated or re-grown. These latter are expressed as the minus and plus spacial reservoirs within which the essential fruitage or ex-nutritive essences of females and males are rendered counter-foreitive both on the pre-specific and on the specific plane. The former is effected by the inbirth of those ripened within the more spacial reservoir of the female, within her less spacial germ-cell, and the inbirth of those ripened within the less spacial reservoir or “appendix” of the male, within his more spacial sperm-cell; while the latter is effected by the inbirth of a fertile spermatozoan ovum fruital to the human male within the fertile ovum of a spermatozoon or germatozoon fruital to the human female. All these mechanical combinations are of necessity repeated within the aerial stratum of the human organism. That is, the auricles of the hearts represent the earth-sphere’s maternal and paternal suns on the inter-earthly plane, the ventricles on the aqueous plane, and the pericardium on the plane of meteoric water, between whose pulmonary and systemic nerves, lymphatics, and blood-vessels, the bronchial and systemic air-vessels, its aerial stratum, is developed.

This clearly indicates that the sanguiferous system with its included air-vessels represents the earth’s stratum of surface, or aerialized water, and its stratum of aquesified air, between its strata of sub-surface and meteoric water.

By parity of reasoning we assume that these same combinations of mechanical powers are repeated in the super-aerial stratum or crano-spinal system of the hu-

man organism *in direct order*; that is, subsequent to the incipiency of the hepatic, the uro-genital, and cardiae nerves as expressions of the eulminate organs of sense in animal forms on these lower planes of sentience, the sympathetic or articulate system, thence the spinal or vertebrate system, becoming incipient as the representatives of the rays of the earth-sphere's maternal and paternal suns on the inter-earthly plane; the *medulla oblongata* representing them on the aqueous plane; the cerebellum, with its outgrowing *arbor vitae*, on the aerial plane; and the cerebral hemispheres of the brain on the super-aerial plane, between which the ganglia or convoluted nerves of the organs of special-sense are developed. Hence our assumption that each special sense, in the order of its incipiency, represents the increasing complexity of these counter-tending rays in their incidence within and reflection from each more inner and more outer plane, in the sense that those of the paternal sun represent the motive tendency of the agents of sensible expression, and those of the maternal sun, the motive tendency of the agents of sense-perception. Viewed in this light, we readily perceive that their ability to sense or to express the modes of motion inherent in the essential constituents of an object is necessarily commensurate with the number of directions to which they were subjected prior to their becoming nucleated as the agents of sense-perception on the nuclear or embryonic plane of sentience, or volatilized as the agents of sensible expression on the atmospheric or mature plane.

8. But we must recognize the rays centrifugating from the earth-sphere's paternal sun as negative, or female, and recognize those centripetating within its

atmosphere as positive or male, but which, when combined, and concentrating within the solar atmosphere, are male, as are those concentrating within the terrestrial atmosphere compared with those radiating from the sun and from the earth, which are female. With a clear conception of these principles of involution and evolution, it is possible to idealize the position of the earth-sphere within the solar sphere as prototypal of the position of a chick *in ovo*. In the first place, the head of the chick is at the oblated or smaller end of its fetal sphere of gravity,—its ovum of evolution. Next, its hearts, whose functions represent those of the earth's counter-parent suns, are nearer the oblate than the prolate or posterior end. If its position is intertypal of that of the earth-sphere, which, if prototypal of that of its culminate organ, the human organism, is fully erected, then the apsides of its orbit are in or near the direct line of mutual attraction and mutual repellence between its counter-parent suns.

And if its anterior extremity is toward the less distant sun, and its posterior extremity toward the more distant sun, then it walks *forward* around the older, the deeper, and the correspondingly more static, sun during a solar year. And if the poles of the latter's circle of perpendicular direct and reflex rays are refracted to the earth's surface as its poles of *extra-solar* magnetism at antipodal points within its polar hemispheres, which have been virtually located, then the meridian circle intersecting its magnetic equator, and cutting these points, is the line of culminate extra-solar ebb-tides of water and air on and above the earth's surface at opposite meridians during the revolution of its equinoxes; the obliquity of these counter-forces at intermediately

opposite meridians at like latitudes permitting corresponding *extra* solar flood-tides. The fact that the earth's magnetic equator, not its axial equator, is the mean of these tides, accounts for the disparities in water-level on different portions of its polar hemispheres. It also accounts for the growth of mountains and rocky promontories, evidently effected beneath its ocean waters; and also accounts for the transposition of the mineral, vegetable, and animal products of different zones that make up its lesser and greater glaciers, frozen during the winters of its revolutions around its maternal and paternal suns, toward and from different latitudes. By parity of reasoning, the meridian circles that pass through the poles of, and intersect the circles described by, the *intra*-solar sun's perpendicular direct and reflex rays, and by its most oblique inter-tropic rays, the earth's atmospheric equators, are the mean of its *intra*-solar ebb and flood tides, which cause and permit proportional dearths and growths on its surface. On the same principle, the equal force of the moon's perpendicular direct and reflex rays on opposite meridians of the earth's surface, and their equal rectangular force on opposite intermediate meridians, *cause* and *permit* its lunar ebb and flood tides.

With this clew to the static and dynamic powers inherent in the nuclear and atmospheric rays of each sphere, and their correlations as *extra*, *intra*, and *sub-intra* spheres of gravity, it is possible to idealize the sum of the interspheres of infinite gravity as being in form an ovum, or egg-shaped, such as solar gravity is known to be, thence to idealize their atmospheric equivalent as being anteriorly attracted toward their proximate centres of gravity, each and all climbing out

toward its altitude of prime incipiency as the essence of form within a never-ending elliptical atmosphere of "primordial substance."

Now, taking it as granted that the elemental germs that make up our world of forms were and are moulded *in transitu* through like species of form constituent to past and prior-past surface stratifications as regards *our now*, our next inquiry is, Whence the origin of their external fulera? The dermal skeleton of crustacea is evidently the basis of the dermal and neuro-skeleton of vertebrates differentiated by the inter-complexity of the osseous fulcra, external and internal, of every intermediate species. The neuro-skeleton of vertebrates consists of the vertebral column, and all the bony and cartilaginous appendages directly ankylosed therewith, also the ventral ribs and sternum, whether or not continuous with the dorsal ribs. The dermal skeleton consists of all the bony structures superimposed upon the former; viz., those of the two anterior and the two posterior limbs, whatever their functions; also the super-vertebral bones, including those pertaining to the organs of special sense, and also all epidermic appendages or cilia of general sense,—scales, bristles, hairs, feathers, down, nails, claws, hoofs, and horns, including the entire non-sensitive epidermis with whose extensions they are one and all covered. How this latter skeleton is added is revealed in the transformation of insects from the pupa state to that of the imago or perfect state, during which they lessen the number, and increase the size and complexity, of their external organs, and change the functions of the internal in accordance with their typal structure.

9. Still bearing in mind that we are not dealing with

“form” and “essence” as the outline and content of non-substantial ideas with simply pictured properties, but with *real forms of essential substance* condensed as the content of the spacialities included within their superficies, the motive forcees by which the essence involved became such remaining intact as their structural proclivities, we perceive that all forms are *de facto* combinations of mechanical powers, whose movements, like the poles of a balancee, are mediate between the motive forcees projected from its centre in opposite directions. Thenee bearing in mind that all solids are animal products, or concretions of their vital fluids, we perceive, that, as the osseous skeleton of each, they are not only *their* needed fulera, as well as matricees for the production and conduction of like fluids, but their functions as wholes are just what is needed by each more embraeing organism within which they are developed. In order to be correlative forcees, the solid eom pounds above the altitude of meteoric water must be counter-positioned as the solid super-base of the stratification compared with those below the altitude of the aqueous stratum, which constitute its solid sub-base; the position of the aerial stratum being intermediate between the aqueous stratum and its counter-equivalent of aquo-vaporous compounds.

10. Now, assuming that the condition of the specific strata of substance that make up our stratification is a repetition of the condition of all below and above its medium altitude, varied in accordance with their differences in spaeial extension and the times of their revolution, we perceive that each stratification above the solid earth necessarily became contradistinctly motile directly it attained the limits of its expansibility under the

super-pressure of its surroundings, because of the contraction and consolidation of its super-base and a corresponding decrease in its co-rotivity with the earth. This would condition the incipiency of a new stratification below it, the advent of which must have been contemporary with, because consequent upon, the incipiency of a new stratification above the surface of the sun. As the somatic death of the nuclear counterparts of the successive stratifications of solar gravity and the volatilization of the atmospheric counterparts, of which latter the primary planets are the culminate nuclei, are of necessity the result of adequate conditions, they evidently occur at the altitudes where, and at the times when, the substance of the latter attains organic equilibrium as contradistinct forms of stratal force. As the rarefaction of the atmosphere immediately above the sun between these descended and ascended counterparts at the disruption of each would produce the same results within its every intersphere, the same phenomena would be repeated in each; the somatic death of its latest nuclear world, and the volatilization of its atmospheric counterpart, being *provisional* to the generation of a new world constituted of the germs fruital to the nucleated and volatilized, or counter-spacially conditioned, elements of the older or parent world.

Having been moulded within like forms, and subjected to like spacial and timal conditions, these elemental germs combine, per force of their inherited tendencies or essential qualities, as like elements, compounds, complex forms, and strata, within the new world varied in structure to accord with the outgrowth of the planet-sphere to which they are additional powers, vital, chemical, and mechanical. The fact that

our planet-sphere is the third above the nucleus of the solar sphere is our license for assuming that our stratification now in process of formation is the third, and that the somatic separation between its nuclear and volatile elements will be provisional to the development of a more interior world of forms, and also for assuming that the difference in structure and function between its interforms and those of our world will be caused by the repetition of their elemental germs at an altitude of greater comminution; the interposition of which new world between its paternal elements in a super-mature state of diffusion, and its maternal elements in an immature state of nucleation, is the elevation of their common offspring to a higher plane of maturity, which is *per se* the elevation of the paternal and maternal elements of a succeeding world of forms to higher altitudes respectively.

Structural conformation to accord with more finely comminuted substance is clearly illustrated in the transformation of insects. When prepared to go into the pupa-state, the larva climb to a definite elevation on some solid support, which elevation is attainable by the transformed imago *without such support*. They are disposed to do this because of the fermentation of the food stored up for general digestion; their wings being constituted of substance in process of fermentation: while in this state, all essences except those of the empyreal elements are excluded. These subtle essences dissolve not only the store of food, but the tissues of their organs, as their need of more active organs demand. The direction of their internal currents being modified by those of the atmosphere surrounding them, and the substance of their vascular systems becoming

consonant therewith, they become organically fitted to exist during an equal period of time at that elevation *in a state of flight*. Now, taking it as granted that their ova are moulded during this temporary elevation, we perceive that the larval and pupal states of insects are intermediate between their existence *in ovo* and their perfected state, and perceive, that, *in ovo*, their specific elemental germs *inherently tend* toward the elevation at which they were moulded, but which is attainable only by the transformations effected during their larval and pupal states. This is an exact counterbalance of mechanical powers. Being fruital to their constituent elements, which were fruital to the elements of their parent organisms, and which at somatic death ascend to a still higher state of existence, the germs nucleated as their specific ova are the co-equivalents of those that constituted their directive soul *in ovo*, and the counter-equivalent of those which constitute it in its *post mortem* state as regards inherent tendencies toward still higher altitudes. This, because their constituent germs and their fruital germs pass through like spacial conditions during equal periods of time, from their *ovum* state to their *post mortem* state; while the elements of their nuclear embodiments are, for the same reasons, the counter-conditioned equivalents of those by which their soul-germs are re-embodied on their higher plane of existence. Their utter indestructibility as *forms of force* is in virtue of the intrinsic ability of essential substance, when diametrically opposed, to comminute itself down to the ultimate plane of intrinsic forceitiveness, and thereby become combined IN ESSE INFINITO; the rays of force diverging from the nuclear equivalent of each twain-in-one ultimate being insepa-

rably interlocked with those converging from the atmospheric equivalent. The eternal conjugation of these correlatives is in consequence of the utter inability of any other grade of comminution, however intense its rotary or heat force, to dissolve this bond of essential unity. What is true of the continued existence of any form of life or self-motile form of substance is equally true of every other for the reason each and every structure is a combination of mechanical powers. As the spacial and timal conditions of every organic form above that of twain-in-one ultimates necessarily include those of every form whose mechanical powers are involved in its constitution, its evolution as a combination thereof must be intermediate, both as regards its spacial position and the time of its advent. That is, its advent on the mature plane must be at an era midway between the *ovum* condition and the *post mortem* condition of all the specific combinations or different species of structure which its mechanical powers represent. Hence the locality of each eulminate species from its *ovum* state to its *post mortem* state must have been within an intermediate stratification of our planet-sphere.

11. The fact that the human species is the most complex combination of mechanical powers constituent to our world is conclusive evidence that its incipiency as its eulminate representative was contemporary with the incipiency of our world as the most complex stratification within our sphere. If, as assumed, the forms constituting it are combinations of the elemental germs fruitful to the entirety of forms that make up the stratifications below and above its altitude, which have become and are still becoming incipient as the soul of

each, each alike becoming embodied by germs fruital to the elements of its commensal forms,—those indigenous to our stratification,—then the soul of each is a part of the soul of our planet-sphere to whose vitality and sentience its vitality and sentience are constituent. Not only so, but each is a part of the human soul by commensal gestation as well as by evolution. As the powers of the human soul are those of the specific elemental germs that constituted it *in ovo*, with their possibilities of evolution, its incipiency as a culminate species necessitated the *pre-existence* of all forms of lesser complexity to which these germs were fruital; while its growth up to a higher stratification necessitates their *contemporary existence*, hence will necessitate their *continued contemporary existence* until the lower qualities which each less complex form of mechanical powers represents are outgrown; its extinction being simply its transformation, and adaptation to co-operate in the expression of more and more complex qualities.

As every form of life is a combination of motive powers indispensable to the life of Infinite Being, the ascension and re-embodiment of its soul-germs as a component of consecutively higher states of existence is alike indispensable to its individualism and to the totality of existence. In embodying itself on the mediate plane of maturity, it elevated the substance of its nuclear organism, the sum of its elemental germs *in ovo*, to the ovum plane. These in their segregate capacity are the counter-equivalents of the elements of its ascended atmospheric organism in *their segregate or diffused organic capacity*.

It matters not how, when, or where these exact quantitative equivalents of counter-mature and counter-

complex germs combine as organic forms, their forces as wholes are forever correlated in nature's grand laboratory as the *modus operandi* of infinite progression in the maturity and complexity of its infinitude of organic forms.

If, as we are forced to admit, life is an endless continuity of correlative forces, it is impossible to conceive of the *whence*, the *how*, or the *wherefore*, of its expression as the motive power of present forms, only as we recognize its co-existence as the motive power of corresponding forms on planes relatively embryonic and *post mortem*. Life never ages in the absolute. The periodic renewings or re-embodiments of its forms on consecutively higher planes of maturation, or of increasing freedom to express inherited tendencies, are relative conditions. The ratio of its progress as force, form, and motion, is necessarily equal on each and every plane. The witherings of age on our plane unmistakably indicate the ripening process,—the gradual exchange of denser essences for those pertaining to a higher life.

12. Another grand mistake of the public mind in the present is the supposition that *forms of thought* or theoretic systems of reasonings become extinct, or cease to be efficient.

It matters not whether thoughts be regarded as objective or subjective,—objects and their representative images or ideals being identical,—or whether, as forms of reasoning in past ages, they be regarded as extinct or outgrown, they move in the present, as they moved in the past, in accordance with their conditions, as truly as do substantial forms, for the reason they are equally substantial. *Forms of thought* in the past are the bases of corresponding *forms of thought* in the present, on the

same principle, and as truly, as the earth's earlier strata of simpler forms are the bases of its subsequent maturation.

Hence each is effective in the present, and will be in the future, just as the essential germs of physical forms, some fossilized for myriads of ages, are as efficient now in the development of higher complex types as when they lived and moved and multiplied upon its surface in its infancy. This, because they are the *bases* of its outgrowth into higher conditions, just as the various tissues of man's organism in infancy are basic to those that, in becoming additional thereto, make up its maturity each necessarily differentiated. Space and time in the absolute are one eternal *here* and *now* within which and during which Infinite Being eternally *is*.

Every exhibition of genius is positive proof that native talent is the impelling power underlying great discoveries and great inventions. It is simply man's ability to express what is typically innate or latent in his constitution. Every speculation of man in the past and in the present is alike based upon the *perception of the necessity* of certain agents and certain conditions the existence of which they are supposed to prove *a posteriori*; and each is alike proof of man's ability to perceive the inseparability of causes and effects *in perceiving the necessity of their co-existence as agents, and acts performed thereby*.

In so far as the perception of the necessity of causes adequate to produce the effects recognized as the phenomena of nature, all original thinkers agree. And it is a significant fact that all differences of opinion are simply different interpretations of the self-testimony of things, what *they* in turn do. That the organisms of

all parental forms, and those of their offspring, are the effect of the same creative forces, is unquestioned; but what these forces are has been the question of questions from time immemorial.

13. The fact that in every age there have been seen, by reliable persons, apparitions in human form, some recognized as departed relatives and friends, others claimed to be deific and angelic visitants from an unseen world, coupled with the fact that all animate forms are developed from invisible substance, is evidently the basic proof adduced to explain the origin of such theories as claim the arbitrary creation of the universe, assumed by popular philosophy to be the handiwork of an almighty personal Deity ostensibly for his own glory. There is ample evidence that the gods and goddesses of the ancient Greeks and Romans,—long the leading nations of antiquity both as regards intelligence and speculative philosophy,—with whom their seers held converse, *were these apparitions.*

When the ideas received were in accordance with the preconceived theories of the ruling powers, the seer was honored, but, if conflicting therewith, he became a martyr. Scoff as the world may at the idea, yet there is the testimony of the ages, that it is mainly through these apparitions that humanity has obtained any idea of a *personal* God, of unseen guardians, or of an after-life, as self-conscious individualities. While the re-appearance in their original forms, with all their sentient powers complete, of persons known to have departed this life, may be accepted as reliable evidence of the continued existence of the organic essence of things on a more refined plane of being, it is no evidence whatever of the arbitrary creation of the universe: on the

eontrary, the fact that the prime essences of embryo forms are moulded within parent forms, into whose like-nesses they become developed, is self-evidence that the substance involved is *intrinsically adapted* to become moulded into like tendencies as those inherent in the parent forms.

If the prime and nutrient essences of all embryo forms, which we are forced to admit, are combinations of the ex-nutrient or fruital essences of corresponding forms, on planes of maturement above and below theirs as regards spacial freedom, and consequent complexity of movement, then the substance of each form is *self-formed in virtue of these overlying and underlying modifications*. If this be the law of progress in complexity of form, then the existence of the earth's present surface types, which are known to exceed in complexity its sub-surface types in the degree the spaciality of their stratification of subsistence is greater than that of the latter, is self-evidence of the existence of corresponding types of form within a stratification of the earth-sphere of correspondingly *greater* spaciality. If our higher plane of existence was necessary in order to refine and increase the complexity of the organic essences of sub-surface types, then the existence of planes consecutively higher is equally necessary to condition the refinement and freer or more mature expression of those on our plane; the same being true of those on every other plane or grade of comminution.

14. By accepting gravity as the tendency of substance toward an equilibrium of the motive forces of equal quantities under opposite spacial conditions, regardless of absolute values or the absolute direction of the movements involved, it is readily seen that attrac-

tion between spherical nuclei, and affinity between spherular nuclei, are identical as relative forces.

The reciprocal influence between the planets of the solar system, and between it and stellar systems,—the central ideal of astrology or ancient astronomy,—included not only the Newtonian ideal of gravitation, but it included the entire range of gravitational force or dynamic equilibrium from the infinitely great to the infinitely minute.

The claim by ancient astrologers, that the physical, the mental, and the moral nature of the earth's inhabitants is affected by the more and more distant and acutely permeative rays of solar and stellar orbs, supplies an indispensable link in the chain of causation which is utterly ignored by popular interpreters of the Newtonian theory.

In the degree these rays permeate our world, whether their influence be termed gravitation or pre-ordination, in that degree they affect the functions of its every product. Astrology not only embraces the higher links of essential or chemical attraction, but the living links or continuity of life, that unite the solar to the stellar systems, on and on, to the outermost bounds of creative creation.

Although fully convinced from its self-testimony, that our planet-sphere has passed through like stages as those by which its constituent forms mature, yet, for reasons too complicated and too abstruse to present in detail, we are equally convinced that the advent of the human species was in an incalculably distant past, and that, since that undatable era, its equinoxes and the solar system's apses have made many revolutions, during which humanity has had its golden ages of sun-

shine and summer, and its iron ages of darkness and winter, its long periods of enlightened civilization, and its long periods of savage blindness. However perverted its tenets by later interpreters, there is satisfactory evidence that the system of astrology dates back to an age when leading thinkers had far clearer conceptions of the "reason of things" than scientists of the present age.

And however man may deprecate these periodic eclipses of his "Godlike" attributes, yet these downward and upward and bi-equinoctial strides of his maternal sphere are as necessary to its progress, including his progress, as the placing of one foot upon *terra firma* while the other is uplifted, and *vice versa*, is necessary to his locomotion. In both cases it is purely the maintenance of dynamic equility, the life and soul of progress, between the negative electro-magnetism of lower altitudes and higher latitudes, and the positive electro-magnetism of higher altitudes and lower latitudes. As humans necessarily inherit the specific attributes of their predecessors, all the experiences of past ages are included in the archetype or possibilities of their offspring in succeeding ages. If so, the present races of humanity, as they gradually outgrow the idols they now so blindly worship, will as assuredly revivify their ancestral conceptive creations as that they are able to recall the experiences of each preceding day on each succeeding day.

15. If our world has been built up, from its incipiency, of the sun's direct and reflex rays, primarily super-solar, its sole nutriment in the present, is it puerile to assume that the functions of its interforms, the sum of which is *its* functions, are affected by the influence of its ancestral orbs?

Coming down to Lavoisier's oxydaic theory of explaining the functions of elementary bodies, has it overthrown the theory of the ancients, that fire is an element of form universal in its functions? Or has it overthrown the more modern theory of Becher, that the principle of fire, termed by him "phlogiston," existed in nature as a distinct substance or agency? Or is the present popular theory, that "combination between different substances is effected through the agency of an *attractive force* acting only between atoms at insensible distances," as explicit or as comprehensive in its range of thought as the ancient theory, that their "combination takes place through the agency or guidance of a spiritual or vital power which dwells in every form of substance, animate and inanimate"?

However manifold and confusing the term "spirit" in its modern application, it was accepted by the ancients as synonymous with "essence." "Spirit of wine," or of any other ferment, is universally regarded as its *essence*. Now, inasmuch as spirit or essence, like the element of fire, does actually "dwell in," and can be extracted from, all substances, we claim, with the ancients, that it is through its omniscient "guidance" that the elements of each and all have become combined as the forms and forces of nature. The reason that these and many other recently revived theories have been rejected, is because they have not been critically examined from the stand-points whence they were idealized. To criticize a theory justly, the principles of which are always more or less eclipsed by the mental rubbish of interpreters of ordinary ability, it must be studied subjectively from an axis of thought that embraces its range of ideal prospective.

Although more complex, modern theorists, like the sons of mature sages, cannot embrace the parental range from their included range until they attain corresponding maturity. But mental maturity is not altogether a question of age, but of *reflection and re-reflection*, the repetition and inter-repetition of thoughts, and of the freedom of expression which complex forms of thought so imperiously demand. Neither is it a question of sex. Sons and daughters, by concentration and reflection, may become, and often are, far more mature mentally than their parents.

The wherefore that modern philosophers do not accept the Platonic theory, that ideas are "innate," which is so clearly explained by Descartes, while they accept the cellular theory of formation, which is identical with the Descartian theory of vortices, is because they do not take into account that his theory is based upon the perception that each more embracing vortex is made up of miniature representatives of outer vortices repeated and re-repeated as inner vortices, and that the motivities manifest by the culminate vortex are *innate* in the vortices that constitute it, and that, by parity of reasoning, the ideas expressed by humans are *innate* in their mental constitution or *in* the ideals that constitute their subjective universe.

Photography proves conclusively, not only the substantiality of thermo-luminous rays, but the actual existence of the "representative images" of things, the necessity for which, as connecting links between the sense of sight and the objects seen, was perceived by original thinkers ages ago. This proves the truthward tendency of the mind's perceptive powers. It was virtually the discovery that the motivities of the free sur-

fæe essences of objects represent the combined motive tendencies of those constituting their nuclear and their atmospheric equivalents. If these representative images are *as essences* identical with those that by condensation within the optic ganglia beeome the thermal or centrifugal principle of light, its living soul on the embryonic or inner plane, and that whieh perceives its prototype on the mature or outer plane, then luminous or magnetic rays, in accordance with their various modifications as such, are the agents of sensible expression, and thermal or electric rays, in accordance with their spacial and timal conditions, are the agents of sense-perception. That is, light and dark rays (relatively negative and positive magnetism) are the atmospheric or centripetal forces, and thermal and gelid rays (relatively negative and positive electricity) are the nuclear or centrifugal forces, of the empyreal spherules involved. As ideal vision, like every other sensation, is the perception by the sensing agent of that which it was on its pre-incipient or atmospheric plane, what better expresses the combination between the ripened germs emanating from the surface of things with like immature germs than the assumption that it "takes place through the *guidance* of their own indwelling essential or spirit powers"? The satiation of every need is effected through the "guidance" of the vital essenees that express it.

16. In treating of chemic force more in detail, we recognize the inseparable inter-cohesion of the nuclei of empyreal spherules interstitial thereto as the inseparable bond of unity between the central and super-central nuclei of elemental spherules, in the sense that the former are the soul-germs, and the latter their prime

embodiments when matured as elements; thence recognize the incipiency and growth of each compound and complex form as the nucleation and embodiment of the empyreal soul-germs of its elemental spherules. Their inbirth and re-embodiment on each successively higher plane of maturity whence they descended necessitates the nucleation of bodily germs indigenous to each higher plane or finer grade of comminution; their ascension being purely in virtue of the exertion of an exact equivalent of ex-nutritive germs in diametrically opposite stages of mobility or maturity compared with those they assimilate as counter-foreitive nutriment. The fruitage of forms of substance is purely their worn-out or over-expanded germs, just such as are fitted to, and are continuously becoming combined with, immobile or immature germs correspondingly over-condensed. This equalization of their inherited counter-spacial conditions, which equalizes their counter-elastic or dynamic tendencies, culminates as the rhythmic pulsations of life on the essential plane of being and as chemic force on the elemental plane of formation. If, as assumed, these empyreal agents—which, as fruitful emanations, express the static and dynamic qualities of every form in nature (all that is knowable), and which, as soul-germs, sense every quality (all there is known)—are the *essence of nature's substance*, its “spirit” as a wholeness, in the sense of being its most refined and subtle constituents, there is needed neither the presence nor potency of any other agency, exterior or interior, to account for either physical or metaphysical phenomena. Under increasing degrees of friction, we have every phase of electric expression up to that of fire and flame, proving con-

clusively that electricity and heat are the same agents expressing different degrees of the same motive force.

When these same agents are projected to increasing distances from the surface of forms, their modes of moving express every phase of magnetic force, up to luminosity and the inclusion of their respective spectra of colors. Relatively regarded, these specified phases of motive force include the entire chemical properties of the empyreal agents involved,—from the extreme of alkalinity or condensiveness, to the extreme of acidity or expansiveness, and from every extreme of salinity or bi-polar expansiveness and bi-equatorial condensiveness, all of whose activities and re-activities are determined by their relative altitudes and latitudes of combination as bases, acids, and salts. That their altitudes and latitudes of combination as the compound elements of earth, water, air, and ether, are just adapted to develop the forms that subsist within their strata of predominance as such, is fully proved by their becoming existent therein. The wherefore that animals breathing nitrous oxide (in which the denser element of air, oxygen, is doubled in quantity) become insensible, is because the surplus oxygen instantly combines with the nitrogenic constituents of the blood, thereby forming an abnormal quantity of expansive air, and reducing correspondingly the nitrogenic force, relatively condensive. They render the nutrient essences of the blood corpuscles too active to act and re-aet rhythmically with their constituent essences. *Per contra*, air in which the denser element is halved, or the rarer element doubled, or any combination of elements representing the same abnormal amount of condensive force,

would render animals breathing it insensible; the motions of the essenees upon which their corporcular interforms subsist being correspondingly too slow.

It is the *essential agents* of sentience, be they those of humans or brutes, that become insensible. In perceiving or abstracting its counterpart quality, the modes of moving by the perceptive agents of the especial sense adapted thereto must be synchronous with those of the sensible agents that express it. The agents of general sense-perceptivity, possessing as they do in their aggregate capacity the modes of moving by all the agents of special sense, are responsive as such under the influence of limited portions of nitrous oxide. But in the matter of perceiving a special quality, which is *per se* the reception of the impress of a special mode of motion, there must be perfect unison in the conjugal movements of the sensing and sensible agents involved. When we take into account that human reason is the sum of the consensual modes of moving by the agents of special sense, whose organs are culminations of the functional capacities of every form of sentience in nature up to the status of humanity, the time of whose development is the entire eternity of the past, we obtain a faint perception of the exactness of proportion between the mechanico-vital powers involved necessary to the perfecting of their infinite harmonies.

17. In our ideal of the structural proclivities of the human organism it is a culminate organ of nature's organism in the sense that its mechanical powers involve those of all nature's preceding organs, or species of structure, up to its status, and that its process of development includes theirs, because constituted of their elemental germs: hence its individuation is a repe-

tition of the individuation of its parent spheres, the earth-sphere and solar sphere.

Its *intra-solar* sun, the liver, is primarily nourished by the splenie fluids that represent the rays of the *extra-solar* sun transmitted thereto through the "hepatie vein;" the stomaeh, with its salivary glands, being its prime representative earth. In the development of its aqueous, aerial, and super-aerial strata of circulating fluids, the roots and branchehs of the efferent and afferent vessels of the lymphatic and of the sanguiferous systems anastomose within the walls of the hepatie vein in its *détour* through the liver. They also anastomose within the walls of the urinary vessels in their *détour* through the kidneys, and within the air-cells of the bronchial tubes and those of the cutaneous mem-brane, thereby effecting a mutual exchange of their counter-tending nervo-vital fluids.

That is, the root and branch currents of each stratum of different fluids anastomose within the nuclei of every other stratum. In the development of the second and more complex stratification of its representative earth (the small intestines), the fluids of the liver (the representatives of the *intra-solar* sun's rays) are *reflected* as branch currents into the venous system through the "hepatie artery," and *injected* as root currents into the intestines through the "bile duct," the fluids of whose brancheh currents, when combined with the panereatic fluids that represent the rays of the *extra-solar* sun modified *in transitu* through the earth's second lunar stratification, that to which its visible moon is nuclear, extend through the thoracic duet *above* its introverted aerial stratum.

In tracing the development of its third representative

earth (the colon, or large intestines), whose ascending transverse, and descending sections, with the sigmoid flexure and rectum, represent respectively the embryonic structure of articulates, mediates, and the three orders of vertebrates,—reptilian, and the partially and the fully erect,—we find these parental fluids reflected into the venous system, and injected into the arterial system from the cæcum, the incipient representative of our world's cycle of animal forms, thence extend *above* its introverted aqueo-vaporous stratum or lymphatic system, to the periphery of its super-aerial stratum or cranial system. The structures represented in the earlier intestines are to those represented in the later, what the general sentience of the medulla oblongata is to the special sentience of its inter-cranial branch organs. The nuclear and atmospheric elements of the human organism are bisexual or counter-tending, like those of the earth-sphere and solar sphere, which, in combination, constitute its counter-elastic vessels, and their counter-tending fluids.

To recognize it as a sphere of gravity, like the chick's ovum of evolution, we must idealize the simultaneous development of its nuclear and atmospheric organisms from its primordial vesicle to its full maturcment on the nuclear or female plane, thence its growth on the atmospheric or male plane, its atmospheric incasement being the ever-expanding incasement of the prime vesicle. And, to comprehend the *how* of its individual motive powers, we must bear in mind that a sphere of gravity consists in an exact equivalence of force within its root currents and branch currents.

The equivalent of centrifugal force is in the rootage of trees, that of their centripetal force being in their

branchage below and above their base of equal force on the earth's surface; whereas, in free-moving animals, the root currents are introverted as the nuclei or nuclear department of the branch currents in the different systems of circulation that make up each nuclear organism, these, as a whole, being the common rootage of its common atmospheric branchage, the nuclear germs of which tend rootward. This is effected by introversions of the membranes that incase different systems. For example, the dorsal, the ventral, and bilateral depressions on the germinal membrane of vertebrates become the spinal groove, the alimentary canal, and the receptacle of the ribs by the adhesion of the serous and mucous layers above them; while the anterior and posterior and bilateral depressions on the middle or sanguiferous layer form the venous sinus, which subsequently becomes the more interior veins and arteries, and also the cardiac vessels that double over as the right and left hearts.

Still later, the gillous projections that represent the respiratory organs of lower species become depressed as bronchial tubes, while exterior portions of the germinal membrane become reflected around the embryo, in whose air-cells the systemic veins originate, and the systemic arteries terminate. Thence the increasing ingrowth of the rootal nuclei conditions the outgrowth of its external appendages through branch currents, the osseous tissues of the dermal skeleton being the branchage of those constituting the neuro-skeleton, while the head, as the fruitage of the entire organism, is simultaneously developed between its nuclear and its atmospheric strata or systems of circulation. Although its transformations to accord with the spacial and timal conditions of its

substance are innumerable, yet, as a whole, the human form is ever an unbroken sphere of gravity. Its alimentary cavity, or under-world, which includes those within which water, air, and ether, plus condensed as basic food, are introduced, are all distinct from the boundaries of its constituent essences, an inflection of the membranous boundary of universal formation, through whose ultimate pores its needed supply of basic essences are interiorly assimilated as counterparts of those assimilated exteriorly.

CHAPTER XIV.

1. THE representative image of every object is its luminous or illuminated photosphere, the shades, colors, and tints of which, are determined by the altitude to which their representative essences are projected, and the quality of the light by which they are illuminated. For reasons already given, we assume that the modes of moving by the empyreal essences of atmospheric oxygen, nitrogen, and hydrogen, respectively express red light, yellow light, and blue light, and correlative assume that the color of a body is a criterion by which to judge of the relative proportions and chemical properties of its predominant elements.

The fact that metals under increasing degrees of heat express in succession the colors of the solar spectrum is self-evidence that its lowest color is the projection of its surface-spherules to an altitude of freedom where the intensity of their axial rotations is the modes of motion recognized as red light, and that a definite increase of heat projects them to the higher and freer altitude where their more numerous rotations in equal points of time express orange light, and so on through the series, the outermost color or colors being over the photosphere or representative image of the *form* of the substance involved, the same being true

as regards the photosphere of all forms, regardless of temperature.

That the agents involved are the empyreal essences projected from the radiant body conjugated with like atmospheric essences, which atmosphere and co-rotate with them, is evident from the fact that their prototypes, the primary planets, increase their axial velocity in the ratio of their increase in freedom to express the expansive elasticity of *their* constituent essences.

The *resistance* of the earth's atmosphere is due and proportional to the *insistent* pressure of the solar atmosphere at its altitude therein, whose essences are forced into it from every direction. Like every other floating body, the earth-sphere has always maintained its position at the altitudes and latitudes within the solar sphere which its relative resistance or specific rotivity determined, which rotivity is determined by the *quantities* of empyreal substance radiated from the earth and that centring within its atmosphere, whose combined momentum is toward the poles from either side of the equator.

2. The flow of these empyreal fluids as upper and lower currents toward and from its boreal and astral poles — their bilateral foei, which are comparatively static — is *per se* the earth's polarity: the mid-day and midnight points, where its empyreal currents are reversed from their least and greatest degree of diffusion on the plane of its equator, are its negative and positive or meridian poles, comparatively dynamic. The mid-day and midnight points on the plane of the sun's perpendicular rays are the meridian or negative and positive or dynamic poles of the earth's atmosphere; the centres of its northern and southern hemispheres

being its comparatively static poles of *intra-solar* magnetism. This degree of disparity in polarity between the empyreal fluids ascending from the earth and those descending toward it continuously precludes the possibility of a "dead point," or a cessation of its rotivity. The earth-sphere's increase in quantity and spaciality has necessarily accorded with its increase in altitude and axiality.

The aggregate pressure on its polar hemispheres being equal, the synchronous impact of the waves of direct and reflex force caused by the sun's axial rotations—elsewhere explained—upon its sunward and anti-sunward hemispheres simultaneous with the re-action of the eo-equivalent quantities of alternately plus and minus condensed essences which are continuously pressing into its opposite polar hemispheres, waft it onward in its orbit in virtue of their combined momenta of impact upon the earth and their equal reflex momenta therefrom. The expansive elasticity of the plus condensed essences forced into the earth by the direct action of the contacting waves increases its centrifugal force in the degree the condensive elasticity of the minus condensed essences forced into its atmosphere by their reflex action increases the latter's centripetal force. The result of their diffusion is a gradual decrease in the associate velocity of the earth's consecutively higher atmospheric stratifications, on the same principle that the planet-spheres indigenous to consecutively higher stratifications of solar gravity decrease their orbital or associative velocity with the sun's superficies in the ratio of the increase in space from the centre of a sphere.

3. The fact that substances denser than air may be

supported in it by axial rotation, ascending and descending in the ratio of increase and decrease in velocity, is ample evidence that the primary planets attained their positions at consecutively higher altitudes within the solar atmosphere by a corresponding increase in axial rotation.

And, by parity of reasoning, secondary planets attain and maintain their altitudes within the atmosphere of their respective primaries by the rotation of corresponding central nuclei, whose axial tendency, like the heart-force in animal forms, determines the centrifugal velocity of their circulating fluids. *Per contra*, the fact that a small wire placed in the centre of a steel tube charged with magnetism, will remain invisibly suspended by the equal force of its counter-tending rays, is evidence that the static equilibrio of the solar orbs is maintained by the equal force of like rays tending toward and from their axes of rotation; and, by parity of reasoning, that the static equilibrio of the solar system as a whole is maintained by the different angles at which the longitudinal axes or equatorial planes of its branch-nuclei or planets intersect the plane of the sun's equator in like manner as the equilibrio of a tree is maintained by the intersection and combination of the axial force of the roots and branches with that of its central axis, the main root and trunk, at different angles and at different distances from its "collar," their common basis of growth downward and upward. And the fact that the different planet-spheres revolve around the sun in periods of time proportional to the cube of their mean distances from it not only proves conclusively that they are indigenous to contradistinct stratifications of

solar gravity, but that each secondary planet-sphere is constituted of distinct stratifications, whose axial velocities decrease correspondingly from their central nuclei.

4. As the three contradistinctly rotating atmospheric stratifications above the sun, within which the planet-spheres, Earth, Venus, and Mercury, with their necessary pabula, circulate, is the structure of the solar system at the altitude of each, on the principle of repetition, the earth-sphere has three atmospheric stratifications, Venus two, and Mercury one, whether or not the nuclei or moons that circulate within them be visible from our planet. Perceiving, as we do, that one orbital revolution of the earth is necessarily one rolling over of its outermost atmospheric stratification, we assume that our visible moon is the nuclear counterpart of its intermediate stratification, and that it has two atmospheric stratifications: hence, from the perception that it could not otherwise maintain its position, we assume that it has a central nucleus whose axial rotations are adequate thereto, and that its visible outline is the super-base of its lowest atmospheric stratification.

We perceive that the arrangement of the substance of a sphere of gravity in strata alternately nuclear and atmospheric, the more rapid associative rotivity of the nuclear spherules conditioning the more rapid individual rotivity of the atmospheric spherules, is in strict accordance with the increase of space from the centre of the sphere, their common axis of rotation; and also perceive, that, as the substance of a sphere attains its elastic limits, the condensation and centration of its plus expanded or ripened essences as new inter-spherules, thence as new interspheres within every department of the culminate sphere, *is a mechanical necessity*; the out-

growth of the new being in virtue of the same process, on and on *ad infinitum*.

5. As none of the solar or stellar orbs would be visible but for the reflection of light from their denser superficies, and its refraction by aqueous vapors, we assume the presence of water on the moon's visible super-base, whether or not its air is sufficiently dense to support visible clouds of vapor. Its subsistence within the terrestrial organism as a specific offspring constituent fetal is self-evidence that all the elements, compounds, and complex forms pertaining to its matriee, exist within the moon's gravitational limits at corresponding positions, whose stages of development accord with its altitudinal status as an ensphered sphere. The opacity and visibility of its super-base is accounted for by its nearness to the centre of lunar gravity and the extreme density of its superficial rays. Evidently the nuclear counterpart of the earth's prime atmospheric stratification at its distance is too small, and its super-base too transparent to be visible ; while the substance of that of its latest or sub-lunar stratification is too diffused. The authentic records of "dark days" and "dark nights," even when starlit, is our license for assuming that these otherwise unaccountable phenomena are due to the interposition of this latter moon-substance between the earth and the sun. The principle of repetition, prototypal and intertypal, licenses the assumption that the separately rotating atmospheric stratifications of every sphere and spherule are superficially incased with substance comparatively static, like the walls of animal cells, whose segregate contents, as is well known, rotate with varying degrees of velocity ; and also the assumption that the incasement of each lower stratification is

the base of each higher, while the illuminable atmosphere above it, or between it and the base of one still higher, is its photosphere, the paternal or super-basic pabula of its surface products; the maternal pabula being indigenous to subjacent and later-developed photospheres. However startling at first thought, yet it is not analogically unreasonable to infer the existence of like strata of photospheric substance between earlier and later nuclear stratifications, not only within our moon, but within every other orb in space. This species of growth is seen in the denser and rarer layers in bulbous plants like the onion. The inference becomes more and more plausible, when we reflect that the procreative force of light within each sphere is centripetal, that of heat being centrifugal, and that the rays of light by means of which the agents of vision within the optic ganglia see the objects whence they emanate increase in subtlety as the grosser empyreal nuclei photograph their images upon the super-bases of the consecutively more interior strata or lenses of the eye. And the correlative inference, that there may be actual light and vision within these inferred sub-surface atmospheres, becomes plausible when we reflect that we see clearly through the coarsest portions of the rays of light reflected from the face of nature when deposited as a corneal image in their concentration within the eye.

6. But all deductions from these premises hinge upon the recognition that the light on each plane or grade of comminution is generated *within* its specific range of elasticity by the combined motivities of the rays *in transitu* through it from opposite directions. This reveals the *how* that the face of nature is also *photographed*

upon the amniotic sac of the human infant *in utero*, which certain "sensitives" discern in looking through it. The face of nature is also *photographed* upon the membranes intervening between the human forehead and the optic ganglia. This is the secret of clairvoyance. In like manner the voice of nature, and the odorosity and sapidity of its forms, are *impressed* upon the membranes through which the afferent nerves of hearing, of smell, and of taste, pass from the cranial surface to their respective internal ganglia; while the tangibility and temperature of things are impressed upon every fibre of the organism through which the nerves of general sense pass to and from the *medulla oblongata*. The functions of these external organs of sense, which mould the representative essences that atmosphere the essences assimilated through the pores of the internal organs, thereby becoming the inner light or vital heat of the agents of sense-perception, reveal the *how* that the images of the objective universe are *increated* as "innate ideas" within the human organism.

If, as assumed, the stratifications of solar gravity within which the planet-spheres circulate are atmosphered by quantitative equivalents relatively atmospheric and illuminable, like the earth's photospheric strata, then the denser, to us invisible, light of each, like the denser visible light of each planet, is reflected toward the sun. This not only proves that the force of light is counter to that of heat, but proves that the empyreal essences, whose synchronous "modes of motion" are *per se* light, are inborn and "innate" in the solar organism.

It also licenses the assumption that the denser light of every sphere within the universal organism is reflected toward the prime maternal sun; the rarer light

of each being reflected toward the primordial atmosphere, typally paternal.

7. If, as is self-evident, the sun's photosphere is the common offspring of its own direct rays combined with those of its maternal sun, which, when centrating within the solar atmosphere, are functionally male, modified *in transitu* through the stratifications within which the planet-spheres circulate, then it must be arranged in strata corresponding with the grade of comminution pertaining to the substance of each planet's channel of circulation; the color of each stratum being determined by its distance from the sun.

In addition to that of rainbows, we present the aspect of our illuminable atmosphere at different altitudes as evidence that the sun has three photospheric strata or *reflections* of the grade of light moulded *in transitu* through the channels of circulation to which Earth, Venus, and Mercury are indigenous, which strata are of necessity repeated as the photosphere of our planet, whose blended colors are prototypal of the solar spectrum. After sunset, the sky often appears of a red color just above the western horizon. This is the special altitude at which aerial oxygen predominates. Immediately above this, its color at times is orange. This is assumed to be the equal predominance of oxygen and nitrogen. Above this, it is yellow, from the predominance of nitrogen. At a still higher elevation, when the sun is low, there are at times patches of hazy green from the mingling of nitrogen with hydrogen. Above this, it is pale blue, from the predominance of hydrogen. Above this, it is deep blue or indigo, and at times, when the sun is at a mediate altitude, the zenith has a distinct violet or purple hue. We assume

these modifications of blue to be due to the presence of super-aerial oxygen and carbon. For these and other reasons, we assume heat and light to be the friction and glintings of the intensely rapid rotations of the empyreal nuclei interstitial to the nuclei of elemental spherules, the ova-embodiments of the empyreal elements. That the point of greatest friction between the spherular nuclei above a radiant body is its maximum of heat is self-evident; and the fact that heat decreases conversely in the ratio of the square of distance therefrom is self-evidence that friction decreases in the same ratio from the *divergence* of the rays involved.

This is our license for assuming, that, when so diverged that the spherules rotate individually in like manner as that portion of the solar system up to and including our sphere rotates contradistinet to the portion above it, it is the glintings of their nuclei, when presented to the eye during their revolutions around their sunules or central nuclei, that express the successive colors in the order of their increasing divergence from increase in distance above the solid surface of the radiant body. Divergent, convergent, and parallel rays are respectively negative, positive, and equilibrate.

When the body is red-hot from the ingress of like nuclei rotating with the degree of velocity that expresses red light, the nuclei of its free surface-spherules are red-hot, and, in their axial rotations, they project the same color outward to the eye by the vibrations they transmit thereto through like intervening nuclei in their successive momenta of impact.

When the body is at an orange-heat from the reception of an additional quota of heat, it projects these same nuclei to a higher altitude, thereby expressing a

more motile color through their more frequent axial glintings. The complexity of color is increasingly expressed in the ratio of increase in the projectile force, for the reason the colors expressed by their *less* frequent axial rotations at each lower altitude are included in their *more* frequent axial rotations at each consecutively higher altitude, the color of all the strata seen in range being white. For example, the number of orbito-axial rotations by the spherular nuclei that express blue light include all the excesses of orbital, and the deficits of axial rotation by those whose orbito-axial rotations express respectively green, yellow, orange, and red light, and also those by the nuclei that express the higher colors, indigo and violet, in reverse order. Although their orbital rotations decrease in the ratio of increase in distance from their sunules,—which, like those of their prototypes, the planets Mercury, Venus, and Earth, is in the ratio of their increase in axial rotation; so that the spaces passed over by their superficies multiplied into the times involved are equal as homogeneous motive force,—yet, in expressing their respective elastic tendencies *in accordance with their freedom to move*, their glintings present the different *colors* of the solar spectrum.

8. The assumption that there is in the aggregate an equal distribution of heat and light upon the surface of each planet and upon the surface of their consecutively higher stratifications of more highly comminuted substance, comparatively static and transparent as surfaces, is based upon the fact that heat and light are never either decreased or increased by distance, or by any number of focalizations and dispersions, provided the number of rays—assumed to be lines of atoms sub-

stantially empyreal are preserved intact. Although the thermo-luminous rays that constitute the bases of our heat and light are dispersed from the specific stratum of the sun's photosphere, responsive to our plane of vision, through a range of ninety-five millions of miles, and modified by becoming focalized, and dispersed within the spheres of Mercury and Venus, and by transmission through, and comminution above, the solar stratifications to which they are respectively indigenous, and the lines of atoms super-basic thereto are converged from the periphery of the solar sphere, and modified by being focalized, and dispersed within every intermediate planet-sphere, primary and secondary, and by transmission through, and coalition below, the stratifications, solar and planetary, to which they are constituents subjective, yet, when these counter-tending lines of atoms become transmitted,—the latter through the peripheral surface of the upper, and the former through that of the lower, hemisphere of the earth's atmosphere, and condensed within our strata of luminosity,—their actual force is unchanged. Their motions are necessarily repetitions of the conjugated rotations of the suns whence they are radiated.

If, as assumed, substance is essentially homogeneous as regards absolute force, then the substance of the dark body of the sun as the nucleus of the solar sphere is equal in quantity to that of the entire super-nuclei; and the momentum of its orbito-axial velocity is the counter-equivalent of the sum of their orbito-axial velocities. As their radiated essences come in contact at every point within the solar sphere, to assume the same relations, and represent the same motivities, the essences of those fruitful to the sun must become ea-

lesced as the central nuclei, or sunules, of these thermoluminous spherules, and the essences of those fruital to the planets comminuted as their super-central nuclei, or planetules. And, to be self-balanced, the force of the orbito-axial velocity of each sunule must be equal to that of the sum of the orbito-axial velocities of its planetules, hence our assumption that heat is the result of the *friction* consequent upon the axial velocity of the central nuclei of these spherules, and light the glintings of their super-nuclei during their orbito-axial rotations.

9. However intense the rapidity of these sunules, they move in but one direction, whereas each super-nuclei revolves on its own axis, and also around its sunule. The orbital range of these super-nuclei is the refrangibility of light. Just as the axial velocity of the planets increases as their orbital range or distance from the sun increases, so the vibrations produced by the axial rotation of these super-nuclei increase with their increase in distance from their sunules. The fact, that, by decreasing the refrangibility of the ultra violet rays of decomposed light, violet color is produced, and, by increasing that of the ultra red rays, red color is produced, is ample evidence that a definite color is a definite range and a definite degree of orbito-axial velocity by the planetules, and that a definite degree of heat is a definite degree of axial velocity by their sunules. This, because axial velocity is radial force, the force which a revolving body—all bodies being revolvent, either individually or associatively--communicates to its radiated essences. Hence the *birth-force* communicated by the sun and planets to their respective radial essences is in turn communicated, by the spherular nuclei they become, to the essences

they radiate. This *birth-force* is *per se* the axial velocity of the central nuclei, and the orbito-axial velocity of the super-nuclei, of the thermo-luminous spherules which the latter essences in turn become. The *wherefore* of the various qualities of heat and light is readily perceived by regarding the nuclei of these spherules as miniatures of the three lower planets and the sun, when visualized as a whole from an imaginary stand-point that would present them to the mind's eye in the same relation that their forms and motions would present to the physical eye on the line of intersection between the plane of the system's equator and that of its axis at the altitude of Mars. Were their sizes diminished by distance to that of a spherule of light, and their rotivity proportionally rapid, the light of these solar orbs would appear as a luminous point; that is, the illuminated surfaces of the planets during their orbito-axial rotations would present the same glintings and the same degrees of divergence as do the colored rays, if *prismatically* separated. As the planes of their orbits intersect the plane of the equinoctial at definite angles within the zodiae during their orbital revolutions, their illuminated hemispheres would be presented to the eye while moving toward it, and their non-illuminated hemispheres while moving from it.

By intervening a prism, their lines of light would be so diverged, that their increased axial velocity in the order of their increase in distance from the sun would represent the solar spectrum in the order the rays of color increase the vibrations produced by their axial rotations. As their light, when thus diverged, would not be focused upon the sun, it could not be reflected to the eye.

Bearing in mind that the qualities of things are purely psychical, in the sense that they are what the media through which they are cognized present, we must take into account the qualities of the medium by whose static constituents the light involved is refracted *in transitu*. The prismatic decomposition of the sun's photospheric strata by refraction within the earth's photosphere is continuous when the sun is just below the horizon, so that its direct light is deflected from the eye; but it requires the *medium* of falling rain-drops to render them visible as rainbows. The strata in the lower bow are in reverse order; while those of the upper bow, its mirage, are in direct order on the same principle that retinal images are inverted, while corneal images are erected *by a reversal of the spherical position of the essential substance involved*.

Having no orbital range, the sun is non-luminous *per se*, yet, being the sum of their axial velocities, its degree of heat or axiality is equivalent to the sum of planetary heat.

The fact that by increasing the refrangibility or divergence of a colored ray, thereby increasing its vibrations or axial rotations in the order of its increase in freedom to move, it expresses a higher or more refrangible color, or, under reverse conditions, expresses a lower color, is conclusive evidence that the intrinsic elasticity or homogeneity of essential substance and the inherent tendencies of its forms, are unchangeably efficient as force, whatever the spacial or timal conditions under which its forcitiveness is sensibly expressed.

This accounts for the reversion of the colored rays on the edges of a form when the apex of the prism

through which they are seen is reversed, and also for the clearness with which forms are seen by polarized light.

10. By regarding the orbital range and axial rotations of Mercury—the minimum of both by the solar planets—as prototypal of the least refrangible and least vibratory rays within the solar spectrum, and the increasing orbital range and axial rotations of the higher planets, in the order of their increasing distance from the sun, as prototypal of the increasing refrangibility and vibratility of the higher rays, the wherefore that the surface-essences of substances subjected to increasing degrees of heat represent the colors of the solar spectrum in the order of their increasing refrangibility, and in reverse order while cooling, is accounted for. And the prismatic divergence of the super-nuclei of thermo-luminous spherules, so that their rays are not focused upon their sunules, accounts for the absence of light, and the presence of the maximum of heat, below the red rays.

By regarding spherules of heat and light as miniature solar systems, the wherefore that certain bodies are pervious to certain degrees of heat and certain colors—reflecting other degrees of heat and other colors without a change of form—is accounted for by assuming that those they reflect are the degrees of axial and orbito-axial tendencies inherent in their constituent essences, which become expressed by those radiating from their surfaces conjoined with like motivities by the essences which these bodies are absorbing as the substitutes of the former, which are continuously combining as their surface-elements. Thus stimulated, each object reveals itself *through the com-*

bined modes of moving by the essences it is radiating and those it is absorbing.

If the entire surface-essences are not free to rotate individually, the object is black, whatever the intensity of the light to which it is exposed, but becomes less and less dark under increasing freedom to move.

Although photospheric rays are present on all bodies, and are always proportional in force to the quantity of substance aggregated within a given area, yet color being the modes of moving by the nuclei of the surface spherules of an object, it can be reflected therefrom only as these nuclei rotate with the degree of orbito-axial velocity that expresses its especial range and rotary force, which, when equal, the body is transparent, its photospheric rays being invisible.

11. The chemical changes effected through the agents of light involve their entire range of motive force from the extreme of density to the extreme of volatility. All these phenomena are revealed in and through the "polarity" of light. It is the *key* to the innermost mysteries of formation,—to the "Holy of holies" as regards sensible expression and sense-perception. If used, as it should be, to signify equipoise between the polar hemispheres of the central and super-central nuclei of the spherules involved, and between those of the spherules of spheres as wholes, "polarity" is the very best term to be found.

Polarity also includes the positivity or plus spaciality of their upper hemispheres, and the negativity or minus spaciality of their nether hemispheres. In addition, we must take into account that descending and ascending rays are comparatively *unipolar* as such until combined as *dual-poled* spherules, luminous and non-luminous.

In accordance with the principle of repetition, elemental spherules are constituted of essential substance, in which all the motive tendencies expressed by the interspheres of the solar system are inherent: hence those indigenous to our stratification of the earth-sphere are coalesced and subdivided by the egress and ingress of the empyreal grade, in accordance with their altitudes and latitudes of predominance as elements, and varied in spaciality and mobility, in accordance with their constituent positions as compounds and complex forms.

12. We will next assume that the earth's prime volatile spherules consist of a central nucleus and three super-central nuclei, which are so diverged by their interstitial atmospheres, that they maintain their altitudes between the earth's rotary force and the pressure of its atmosphere *by the rotary force of their central nuclei, counterpoised by that of their super-central nuclei*, in like manner as that portion of the solar-sphere included within the earth's orbit maintains its position within its maternal sphere by the rotary force of the sun, combined with that of the planets Mercury, Venus, and the Earth. That is, the axial force of the spherular nuclei of the essential elements, carbon, aerial oxygen, nitrogen, and hydrogen, represent on the elemental plane the axial force of the sun's superficies, thence the projection of this force as the orbito-axial force of Mercury, thence as that of Venus, thence as that of the Earth. If so, the structure and functions of the spherular nuclei of each higher element, like those of each higher planet-sphere, include and express the structure and functions of the solar-sphere at its altitude as their intypes. If, as

assumed, the atmospheric nuclei of each element are discreted in the order of its decreasing specific gravity, then the rotary velocity of those of each lighter element is correspondingly increased. As their friction decreases, and their glintings increase, in the ratio of their increase in freedom to move up to a specific altitude,—these phenomena being reversed as they become liquefied, thence solidified by condensation,—we have a clew to the harmonies of color. The neutrality and transparency of water consist in the exact counterpoise between the vaporescence of liquid oxygen, its base,—the type of acidity,—and the deliquesence of super-aerial hydrogen, its super-base,—the type of alkalinity. The neutrality and transparency of air are in virtue of a like but intermediate counterpoise between the motive forces of its base and super-base, aerial oxygen and aerial nitrogen. Purple test-papers become blue under the *direct* convergent force of alkalies, and red under the *reflex* divergent force of acids, a medium purple being an equipoise between these counterpart colors. The predominance of alkaline or of acid properties in different compounds is readily detected by the predominance of blue or red in the test-papers used. The static relations between the aqueous and the aqueo-vaporous strata are maintained by the same laws of force. The mutual attraction between their predominant elements—liquid oxygen and super-aerial hydrogen—is counterbalanced by the mutual repulsion of aerial oxygen and nitrogen forcibly combined between them as the aerial stratum. Being more cohesive, aqueous vapors ascend and descend through air, in virtue of the lesser cohesion of the aerial elements.

The same laws of force are readily traced in the systems of circulation that represent these strata in animal organisms. The color of healthy bile is that of the predominant elements, hydrogen and nitrogen: it is assimilated by and fruital to the veins and their attendant nerves and lymphatics. The excess of either of their representative colors — blue and yellow — is at once apparent in the abnormally dark or light color of the faeces. If too light, the organism is languid from a deficit of hydrogen, or an excess of nitrogen, whose re-active forces when equally condensed are respectively plus and minus compared with their forces combined in normal quantities. When too dark, the circulation is too active, from an excess of hydrogen and a deficit of nitrogen.

It must be borne in mind that the lower and upper layers of the "germinal membrane," which represent respectively the earthy and the super-aerial strata, become inflected and reflected primarily as the coats or layers of the alimentary system, including the lymphatic system and the dual-layered membrane that covers the organism externally, — its true skin; and that the middle layer (their common offspring), like the aerial stratum (the common offspring of the earthy and aqueous, and the aqueo-vaporous and super-aerial strata), is the *functional representative of both*. This is clearly revealed in their inter-repetitions as the middle layer of the veins and arteries, which is developed simultaneous with the bronchial system; that is, the membrane that lines the bronchial tubes is a continuation of this middle layer, the capillaries of which anastomose with the capillaries of the veins and arteries that nourish and fulcrate the movements of the outer

and inner layers of the prime veins and arteries, in like manner as the bronchial air-cells anastomose with the venous and arterial capillaries that constitute the dual-layered membrane of the upper and lower lobes of the lungs.

This is the repetition of the bronchio-sanguiferous system within itself, in the sense that the air injected into the arterial capillaries of the lower lobes is conducted through the bronchia or air-tubes of the middle layer of the walls of the arteries, and ejected therefrom into the cutaneous air-cells; while the air injected through the latter into the venous capillaries is conducted through the air-tubes of the middle layer of the veins, and ejected from the pulmonary air-cells of the upper lobes into the arterial capillaries. In our ideal of their formation, these chains of bronchia, which extend throughout the sections of the veins and arteries, as do the chains of polyps throughout a coral tree, commence in the venous department at the anterior and posterior portions of the venous sinus; the venous fluids being priorly effient. As is well known, the bronchia of *terra firma* air-breathers are inversions of the gillous projections of aquatic air-breathers. This, because the air is forced into the former, whereas the latter reach out after it, as do all vegetable forms; their roots being extended between the outer and inner layers of the vessels that conduct their nutrient fluids, whether they be sanguiferous or chylaceous. Hence we assume that these bronchial chains commence at the commencement of the veins, first as the simplest gills; thence, at their acme of complexity, become transformed, first into amphibian organs of respiration, thence, as they near the right heart, their increasing complexity culminates

as the bronchial systems of higher species; those of each earlier species being less complex.

These respiratory chains, which represent the breathing apparatus in the animal series, whose miniature repetitions make up the more and more complex sections of its vessels, are reverse in form in the arterial department, in accordance with the flow of its fluids in an opposite direction. Animal forms are self-moving, because they not only carry about with them the soils and water necessary to nurture their lowest stratum of forms, but they have the aqueous and atmospheric strata of forms with their respective pabula repeated and re-repeated in their organisms in the order of their later advent as constituent organs of their common sphere of existence.

13. Each element of each form, however combined, is specific in structure and function. If organized, as they necessarily must be, the substance of each spherule of each must inherit every motive tendency involved in organic action: hence it must have passed through every stage of essential formation prior to its incipiency as an elemental spherule with irrepressible affinities for like but counter-conditioned elemental spherules. That is, its prime procreant germs must have passed through the super-base of our stratification to the earth, thence were reflected therefrom as female germs, which, in combining with corresponding germs functionally male, in process of descent, became its specific structure *in embryo*. It must be borne in mind that a spherule of liquid oxygen is as different in form and function from a spherule of aerial oxygen as is a water-breathing animal of the same genus from its air-breathing successor. The difference in form and function between the strata that constitute our world is assumed to be

the difference in form and function between their respective elements; their arrangement and relative proportions being determined by their degrees of maturity and complexity.

14. Just as electro-magnetic light results from the combination of two currents of electricity and magnetism so combined that they tend towards each other from opposite directions, so daylight results from the combination of two radial waves of empyreal essences tending toward each other from opposite directions; the two orbs whence they originate being plus and minus in density, like the two metals whence the former currents originate. The disparity between the orbital range and axial velocity of the spherular nuclei of the sun's incidental rays and of those reflected from the earth, render them spacial and timal counterparts; the motivities involved in the equalization of their excesses and deficits of space and time, through an exchange of their ultimate atoms, being *per se*, daylight. As wholes, the spherules of the earth's rays expand by absorbing the heat given off by the condensation of the sun's rays; light being the glintings of their nuclei heated to whiteness by their rapid rotations. To illuminate our entire stratification, its included light must be reflected from its super-base as the earth's reflex rays, just as its direct rays are the sun's rays reflected from its base, the earth's surface. In addition to this mechanical necessity, there is phenomenal evidence that daylight is reflected from counter-directions in addition to the refraction and condensation of the sun's light and dark rays from the periphery of the earth's atmosphere.

As only the more and more subtle essences of the sun's rays pass through its consecutively lower stratifi-

cations,—the denser flowing in the sun's wake above their surfaces as currents of electricity, just as they do on the earth's surface,—we assume that they become visible as the zodiacal light within the tropics, and, by condensation within the arctic regions, become visible as auroras or magnetic currents. They are visible as the extreme degrees of heat and cold within these lower and higher latitudes. That electro-magnetism is a combination of the sun's light and dark rays, and that it permeates our atmosphere by ingress and egress within ascending and descending aqueous vapors, is self-evident from the fact that air, in consequence of the slight coherence of its elements, is a poor conductor of the empyreal elements.

The combination of these rays is the incipiency of like elements as those to which they are fruital; the ascent of parental germs to a more mature plane being the correlative of the descent of their nuclear germs to the embryonic plane. But, were not the female and male germs of each incipient organism adapted to act and re-act within specific but different ranges of spacial modification, neither could act or re-act separately or conjugally.

In order to progress *conjugally*, the expansive capacity of the basic element of its every compound must be *above* the expansive capacity of the super-basic element; and the condensive capacity of the super-basic element must be equally *below* the condensive capacity of the basic element.

The disparity in the range of their elastic forces, which is due to their plus and minus density, enables them to exchange their fruital essences, thereby *combine* their motive tendencies, thence to act and re-act

rhythmically from a common centre. *This is the grand secret of organic outgrowth through ingrowth.* It involves the same principle as disparity in spaciality between the central and super-central germs of each species of elements which determines their different sexual functions, and which are externally repeated in the axial and orbito-axial revolutions of the sun and planets.

15. If, therefore, the glintings which express the lowest color increase in number at consecutively higher altitudes in the ratio of their increase in freedom to move, and those of the next higher color pass through the same changes, so on through the entire series, it is readily perceived that each color, including black and white, is a complexity of every other color above and below its altitude of expression; their difference in function being due to differences in their orbital range or refrangibility, and in the rapidity with which the spherular nuclei rotate axially.

As regards the refraction of light, we claim that transparent media, like all other forms of substance, have their ascending and descending empyreal rays, hence that rays of light from any angle of incidence in passing through transparent media, or in being reflected from opaque bodies, will be deflected by their photospheric surface-rays, and its rays of color partially separated.

Reflection is single refraction. Double refraction is the deflection of the rays of light by the perpendicular rays on both surfaces of the transparent body through which it passes, as in the case of its so-called "decomposition" by passing through a prism. Although the bases of the different species of cilia, which as such are

variously deflected, yet these photospherie rays are always perpendicular to the surface of the body whence they issue, and are increasingly prolonged and refractive in the ratio its substance is minus spacial compared with a medium density. Our perception that the illuminated hemispheres of the planets Earth, Venus, and Mereury, during their orbito-axial revolutions, would represent to an observer on the planet Mars at its equinoctial points, like glintings as those of the atmospheric nuclei of the elements within the earth's illuminated atmosphere during their orbito-axial rotations around their sunules, includes the perception that the extreme divergencee of these planets from the plane of the equinoctial is prototypal of the extreme divergence of these nuclei from the equatorial plane of their spherules. In virtue of this, the rays of color in a beam of light are least condensed when its angle of incidence is twenty-three degrees and a half from perpendicularity, from which basis of divergencee their spherules become increasingly condensed poleward in the ratio of the earth's decrease in longitude.

The light by which our world is illuminated is a compound of the earth's direct rays in process of ascending *divergently* from its surface, and the direct rays of the sun refracted from the periphery of the earth's atmosphere in process of descending *convergently*.

Being essentially dynamic, the rotivity of the spherular nuclei of the earth's luminous rays increases in the ratio of increase in space from the centre of a sphere up to the super-base of our stratification, the base of a higher terrestrial photosphere, whence they are reflected earthward with a corresponding increase of orbital, and decrease in axial velocity. Hence, while the

direction of the earth's reflex rays coincide with those of the sun's directly refracted rays, they are diametrically opposite to those reflected from its surface as its own direct rays. Simple daylight is the reflection of these combined rays from these counter-bases.

The luminous or illumined photospheric rays converging and diverging toward and from all objects *are spherical*: hence the photosphere of each has its bi-meridian and bi-polar boundaries. As the earth's photospheric rays are refracted toward their perpendicular axis (the plane of the sun's perpendicular rays) in the ratio of their increasing density earthward, the ultimate boundaries whence they can be re-reflected upward bi-lateral thereto is at an angle of about 57° , varying therefrom in accordance with the refractive index of the substance by whose surface-rays homogeneous daylight is modified. For example, when a beam of light is reflected from a plane mirror at an angle of $56^\circ 45'$, its bi-polarity is complete in the sense that its rays of color are deflected poleward diametrically opposite to those of incidental light at its extreme latitudes of reflection. Its rays at this extreme of bi-lateral reflection are so nearly parallel on both sides of its perpendicular axis, that they penetrate the interstices between the minute nuclei of transparent bodies to such a degree that they stand out in relief, like objects seen through a stereoscope. By placing a plate of glass edgewise on hot iron, so that the lines of heat entering it are at right angles with its surface-rays, and then passing a polarized beam of light through it, and allowing that light to be reflected from a transparent body at an angle of $56^\circ 45'$, and in a plane at right angles to that in which the common light was reflected and

polarized, an observer looking through the glass will see these reticulations or counter-lines illumined by the most brilliant colors. The prospective diseloses the areas of its *ultimate cells*, and in the nearest sense conceivable interlinks the real with the ideal by overleaping, as it were, the last lines of demarcation between the objective creations of nature and the conceptive creations of man.

The perceptibility of the rays of color by reflected light is functional, and consequent upon a change in their spacial condition. The functions of light projected from every form of substance are similarly affected by re-reflection, varied, in the case of each, in accordance with the varying degrees of counter-pressure to which the photosphere of each is subjected; the color of each being the modes of motion by its surface-spherules, which are intermediate between the internal expansive force of its constituents and the external pressure of the earth's atmosphere under which all become visible.

The slightest change in the predominance of either of these counter-forces of growth varies the color of a radiant body. The same is true as regards the color of all growing vegetables. The deepening green of their foliage under the expansive force of heat is the prolongation of their photospheric rays. Their shortening under the contractive force of increasing cold is seen in their change to yellow, thence to orange, thence to red. Whatever its shade, or degree of transparency, the refracting index of each form of substance increases in the ratio of its increase in density from a corresponding increase in the length and subtility of its photospheric rays. Change in the color of a radiant body or in the radiance of fire is a change in the color

of its base from red on to white; whereas the base of flame is black. The color of flame is the color of the elements constituting the fuel. This is why the flame of burning gases is more like the photosphere of the sun above its black body as regards the colors of their spectra.

Each photospheric color is the mean of the range and glintings of the elemental nuclei it atmospheres: hence, in becoming statically nutrient to a form, it projects its momentum centreward, from spherule to spherule, substitutively as the representative of every consecutively more outer form of moving. Now, taking it as granted that red color is the glintings of spherular nuclei projected from a radiant body, or from a red substance of any sensibly-expressed temperature, with such a degree of force as would carry them to the lowest altitude of color, where they rotate four hundred and eighty-two millions of millions per second, we are aware, that, in order to be visible as *red rays*, they must be illuminated by an atmosphere of *white rays*, which is every color below and above its spectrum altitude. Place the substance in the red rays, or view it through red glass, the color is unchanged, because the spherular nuclei of the atmospherating rays are equal in range and rotivity. Placed in the yellow rays, the color is changed to orange. In becoming combined as compound spherules, the red or centrifugal nuclei become atmosphered by the yellow or centripetal nuclei. In doing this, the former expand, and the latter contract, in equal degrees, which equalizes their size, their specific altitudes, and their velocity as wholes. The color of the body is not changed; but the yellow rays of the spectrum, being relatively more convergent, come to

a foeus *below*, thenee are reflected *above*, the focal altitude of the red rays. By their combination we have an expression of what is invisible *per se*. Just as the invisible nuclei of the red and yellow rays become expressed as intermediate orange rays, so the essential germs of the earth's sub-stratal and super-stratal forms become combined as the earth's present surface-forms, all co-existent on the essential plane of being.

In virtue of including the range and rotivity of all the complementary colors above and below its spectrum altitude, each color is an octave of successive waves of light moving in unison with both the lower and the higher, just as each musical tone is an octave of successive waves of sound vibrating in unison with every complementary tone above and below it. The vibrability of the yellow rays is the most intense, because the culmination of an octave of inner and outer repetition reaching below the red rays, and above the blue rays. Its rarity as an objective color is in keeping with its intermediaey as the predominant representative of the aerial stratum. The same is true as regards the still greater rarity of blue, except as the color of hydrogen, the predominant element of the super-aerial stratum. The predominance of green as an objective color is due to the predominance of nitrogen and hydrogen as the super-bases of air and water respectively, these compounds being the predominant nutriment of vegetable forms. The ripened or refuse compounds excreted from their leaves, which were absorbed by their roots, are predominantly aqueous vapors, with minor proportions of carbonic and nitrogenic acids; while those absorbed by their leaves, and excreted from their roots, are predominantly nitrogenic and carbonic

acids with minor proportions of aqueous vapors. It is the combination of the escaping hydrogen with the ingressing nitrogen within their stomata, that constitutes the green of their midsummer leafage. The color of light being the outer representative of life, or vital heat, the increasing complexity and motility of forms are of necessity sensibly expressed through the modes of moving by luminous spherules correspondingly complex and motile.

That the refrangibility and vibratility of the rays of color do increase in a definite ratio from their axes of motion has been fully demonstrated. The red rays are always nearest the angular points of a prism, whatever its position, because, if an equilateral triangle, each edge is alike the centre of a sphere: hence the light is plus condensed in passing through this part of the prism, just as air is plus condensed within the air-cells of the lower lobes of the lungs. The light of our world is *within it*, between its base and its super-base, just as the light of the eye is between its optic ganglia and its cornea; the light from without and that from within being reciprocally forcitive. And just as the heat and light of our world is adapted to build up its various forms, and to ultimate in their sensible expression and sense-perception, so that of each higher stratification is equally adapted to its inner needs. It is useless to speculate as to how their respective atmospheres and their static boundaries became adapted to transmit the light from external orbs otherwise than by the gradual refinement of their rays, which ultimately in their present transparency. The latent tendencies of every shade of brown and black are basic to the expression of red light; the orbito-axial rota-

tions of every higher color, including white, being super-basic.

While each color is a compound of the motile qualities of all shades and colors below and above its spectrum altitude, transparency is the absence of all in the sense that it is all their modes of moving *in dynamic equilibrium*. This, because it is the latent heat that holds each and all *in statu quo* as *forms of motile force*, or as the *fulcra* that condition the expression of motile force. Transparency is to color what the sense of feeling is to special sense, each being the bases and super-bases of that which it includes. The substance of all, being primarily transparent and intrinsically vito-sentient, *is whatever it becomes*.

It is in virtue of the reciprocal interchanges between the vital heat latent in the earth's atmosphere and that within our atmospheres, which are inseparably correlated, that the agents of special sense cognize the qualities of things through the modes of motion by their atmospheric atoms; that is, their power to do this is because the substance of the cerebral hemispheres of the brain, and that of the cerebellum, between which their common offspring, the ganglia of special sense, are developed, is an aggregation of the empyreal representatives of every form in nature counter-spacially conditioned.

16. The nutrient sensations or thought-germs that nourish these agents of sense are moulded by transmission through the atmospheres of the nuclei of this medullary substance, hence transmit to them the same tendencies; those of light bringing us into actual *rappoport* with objects at incalculable distances. Heat and light reveal the innermost and outermost harmonies

of nature,—its *soul* and its *representative image*, its “spirit-form” on our plane. Their records are “infallible,” inasmuch as truth is harmony between the essence or soul of things, and that which they express through their essential representatives.

The great mystery of soul-life lessens in the degree we are able to perceive that all our ideals of the abstract and concrete qualities of things as revealed to us through the “modes of motion” by their fruital essences, and which, by cognition as conscious knowledge, become our agents of sense-perception, with their infinitude of possible transpositions as thoughts, *must and will be our agents of sense-perception on our every plane of being.*

The efficiency of these whilom agents of sensible-expression are by no means lessened by becoming the agents of sense-perception on the consecutively higher and more mature planes of communion through which they have descended to the plane of specific formation.

Our specific soul-powers are simply the evolution of the essential soul-powers involved in the constitution of our essential organisms. Our essential organisms being constituted of the essential representatives of every form in nature by which our entire lines of ancestral forms were nourished, including those of our commensals, we are, as sentient beings, a compend of the sense-perception and sensible expression, or heat and light of each and all, in the sense that light is the external representative of the internal heat, or soul-force of sense-perception.

17. Not only does color introduce us to the consecutively higher and more complex qualities of our world of forms, from its murky depths to an actual glimpse

of a higher life in the sometimes visible tints of its royal purple at the zenith of our outlook, but man has instinctively symbolized his ideas of a higher life through the expressions of color.

During the reign of the appetites and passions that pertain to his lower nature, man's highest theosophy was an ideal intercourse with a Supreme Ruler possessed of like appetites and passions. The bloody sacrifices of savage rulers to a supposed all-powerful ruler, their invisible prototype,—their victims often contending for the honor of being sacrificed,—were simply projections of their own bloodthirsty proclivities.

And these gory displays were *de facto* representatives of their ideal of the taste of the exacting, bloodthirsty ruler they wished to propitiate. The fact that the passions of many herbivorous animals are rendered furious by a sight of red objects is satisfactory evidence that the lower passions, as well as the appetites, of men in a savage state, crave and are gratified by the sight of a color correspondingly low,—*the color of blood*. And it is a significant fact, that, in the degree humans progress in civilization and mental culture, in that degree they crave and are gratified by the sight of colors correspondingly refined and complex. And, by parity of reasoning, corroborated by the fact that flowering plants are plus complex compared with non-flowering plants, hence were later productions, we assume that the first flowers that decorated the attire of mother-earth were the successively lighter hues of red on a literally black ground,—different shades of brown. The progress in complexity by the elements of the earth and its atmosphere, was, is, and ever must be, the progress of their common offspring.

18. Man's theosophy in the earlier stages of his mental development was necessarily in keeping with his surroundings. His assumed intercourse with an ideal being, the sum of whose vital powers were accepted as the soul of the objective universe, out of which every subsequent system of theology has grown, was evidently anterior to the faintest expression of what are recognized as the *religious sentiments*. Hence our assumption, that in no age or nation is there the faintest kinship between its systems of theology and the religious sentiments of the people. The former are man-made theories: the latter are innate in the constitution of man. It matters not what awakens and quickens into activity man's sense of what is good and righteous, or by what these sentiments are subsequently nourished, they never could become expressed as good words and righteous deeds, were they not "*innate*" and *capable of development*. A theoretical belief in Pantheism, or Polytheism, or in Monotheism, is utterly distinct from man's consciousness of his duty to his fellow-man in their common battle for life. There is and can be no merit in belief, or demerit in disbelief, inasmuch as they are not matters of volition, but depend entirely upon satisfactory evidence.

There can be no question of the sincerity of these savage theosophists. They not only offered expiation, and sought favor by sacrificing their own loyal subjects, as well as captives taken in battle; but their rulers were wont to cut and otherwise torture themselves,—far greater sacrifices than the donation of a plethoric purse. The groans and cries of the victims, mingled with their vociferous adulations, were their highest ideal of sacred music. This music was regarded as

most acceptable to the ears of the gods or god they worshipped, because most gratifying to their own low and immature sense of hearing. And we assume correlative, that the spirit of religion—man's innate sense of goodness, which can only become expressed through corresponding acts toward his fellows, however self-satisfied or happy he may be in the consciousness of duties performed—is as distinct from the spirit of worship, which accompanies the various systems of theology, as is the love of religion, or the love of science, from the love of fame. The popular assumption that love of praise and of flattery is the ruling passion of the Infinite Ego had its rise solely in the egotism of man,—in *his* love of public and private adulation. Evidently these crude ideals have had their uses all along the pathway of human progress, as their symbols may have in the present; but the time is at hand when our later conceptively-created gods—man's whilom highest conceptions of an infinite good—must give place to still higher conceptions, in like manner as the ideals of our earlier savage ancestors gave place to those of their less savage successors. Leading minds in the present are fully convinced, not only that men and things grow themselves by self-aggregation from substance adapted to become what they are, but that they are capable of self-government as well as of self-sustenance. And while they see the inestimable benefits that might be derived from civil governments with their institutions for mental and moral culture, for the protection of the weaker against the stronger, and for the sustenance of those not self-sustaining, they also perceive that these institutions must either change gradually to accord with the gradual progress of public sentiment or by abrupt revo-

lutions. In the matter of mental and moral training our popular institutions recognize certain theories assumed to be God-given and too sacred to be investigated.

All appeals to nature's testimony to the contrary, are met by the sweeping assumption that "nature is cursed of God," and man is totally depraved."

It is these theories, not religion,—man's love of good, of his fellow-man, and his hope of an after-death heaven,—that science has had to contend with. Starting with the belief that man is God's natural enemy, and prone to evil continually from causes utterly beyond his control, no effort has been spared to convert him into the image of the jealous, angry, and vengeful God, to whom it is assumed he owes his being, and from whose continuous wrath here, and endless hell-torture hereafter, he of himself has no possible means of escape.

19. The public mind grows of necessity into the likeness of the thought-germs by which it is nurtured. The poisonous "tares" now being resown broadcast in society is painful evidence that these efforts have been successful.

The teachings describing his evil nature procreate the evil deeds man commits. In all ages, including the present, the public generally, and children especially, have been as impressively taught all the details of wrong-doing, and the consequent degradation and punishment therefor, here and hereafter, as they have been the right way with its assumed honors and felicities. And, just as in all past ages, the world's educators are still striving unremittingly to uproot the tares they are thus unremittingly sowing. The presentation of the vices of criminals to the public, whether described in

oral or written language, or illustrated in pantomime, or in characteristic symbols, is a *lesson* in crime which is unavoidably impressed upon the mind of every person that hears or sees, and understands the description. In studying the good and evil in nature, we must not speculate as to what things might, could, would, or should be, but accept as facts that the vital powers of our planet-sphere have done their very best, from its incipiency to the present, under its ever-bettering spacial and timal conditions; and that its gaseous and mineral compounds, and its flora and fauna, have ever been just what its essential germs *could* become. The fact that the latter can be and have been improved by cultivation, by improvements in their conditions, and that humans have improved their own conditions in improving those of the forms of life below them, is evidence that forms of life on consecutively higher planes are correspondingly improved by our improvement. Although health and sickness, like comfortable and uncomfortable degrees of heat or of cold, are, to those enjoying the one, or suffering the other, positively good and positively bad conditions, yet, as nature's agents, both alike are working out *better* conditions.

If, as assumed, the static and dynamic qualities, or structure and functions, of each sentient being, are inherited from the spacial and timal conditions of its every specific ancestral organism, and from those of the commensal species of each, man's proclivities are pre-determined thereby. Hence each man's ability to *express* his inherited physical and metaphysical powers are pre-determined rather than volitional.

Even his ability to improve his conditions is conditional, however detrimental to his apparent welfare.

He must needs obtain the wherewith to sustain life. And life in form is purely aggressive as regards its basic nutriment. Each form necessarily lives upon what it essentially *is*, — upon the *essence* of other forms of life.

Who is responsible for man's apparent wrong-doings? If arbitrarily created with propensities antagonistic to the will of his Creator, then the responsibility is readily determined; and human acts, whether good or evil, are justifiable. But the fact that the specific essential germs that become the sentient Ego of the human organism (which each Ego builds up by the exercise of its own inherited powers) are *constituent agents* of the Infinite Ego proves that the Infinite Organism is self-created solely in the self-creation of its infinite parts. There is and can be no wrong-doing as regards the absolute fitness of things, the vital functions of their essential germs.

But for local antagonisms, apparent wrong-doing, there could be no complex functions or individual organisms.

Carried out into their absolute relations, the most atrocious acts of individuals (even the present degrading influence of public sentiment, whereby the less favorably conditioned are driven into ever-increasing depths of poverty and criminality) are procreating an irrepressible re-action toward a higher civilization.

20. Foremost as the basic cause of the greatest evils, the most heartless cruelties, and the most horrid crimes, are the gods which men have set up as idols or ideals of supreme authority.

The rulers of every country, in every age down to the present, have governed and been governed through

these agencies. From time immemorial the earth has been drenched with human blood (ostensibly for the honor and glory of these gods), each tribe, clan, and nation claiming *theirs* as the only true God. Myriads of human lives have been sacrificed at the stake, on the gibbet, or rack, or by other modes of torture, simply from dissensions in regard to the most acceptable manner of *worshipping* these purely man-made and man-attributed deities. And yet these ideals of supreme authority have ever been, as now, a bond of union between men of the same "faith and mode of worship;" the results of which unions are inconceivably more advantageous to the race than the chaotic depredations of "individual sovereignty."

Human reason, the sum of which is the highest representative of that of the Infinite Ego, has necessarily been subordinate to these temporary regents during its minority. The ushering in of its reign will in turn subordinate these ideals; the reign of each being limited to the minds of their respective human creators.

21. The next local evil as regards predominance is the injustice of the male of our species toward the female. That woman as a sex suffers great injustice from man is unquestionable. And yet the absolute good attained outweighs the relative evil.

In all ages, as is the case in the present, man has *compelled* woman to live a better life than he himself lives; a better life than he, with his greater powers of resistance, is capable of enduring under like oppressions and provocations.

He has thus compelled her to cultivate her powers of "moral suasion," — powers as much superior to those of physical force as right is superior to might. It is

through these higher powers that woman in all civilized countries rules her master; which powers, in the incoming joint reign of reason and religion, are destined to rule the world. Man's denial of woman's equal efficiency in ruling and in benefiting the race—partly because of her physical weakness, but mostly because of unfavorable traditions regarding her sex—are radical mistakes, attended with most disastrous results. Although too absurd to merit other notice than silent contempt, yet the fact that these and similar traditions have always been, as now, reason's most formidable enemy, their claims to truth should be critically and fearlessly examined, especially since burning at the stake has dwindled down to the simple cry of "infidel" as punishment therefor. The assumption that "man was first created, then woman," debars all investigation as regards the *natural development* of the species as revealed in the development of the animal series of which it is the culmination.

No fact of science is more clearly demonstrated than the prior formation of females in the lowest sub-kingdom; males being primarily single organs within female organisms, in like manner as our moon is a male organ within the terrestrial organism. To be a culmination of the mechanical powers of all species below it, each more complex species must of necessity begin as did the series,—the beginning of the terrestrial organism,—by the centration of essential substance at a new centre as the basis of a new *form of force* functionally female, thence the ex-centration of its essential rays, which at its gravitational limits become the bases of a super-central organ functionally male; that is, the excentration of the latter's rays in every direction repre-

sents the functions of the central or female organ on a higher plane, in like manner as the centrifugal rays of the planets represent the sun's centrifugal rays within its own atmosphere; those tending toward its centre being centripetal or male as regards solar gravity. Again: the assumption that woman, the assumed appendix of man, "brought death into the world," is directly opposed to the revelations of geology, which prove conclusively that the lower links in the series lived and died, just as they now do, myriads of ages before the earth-sphere was adapted to develop the human species. Science fully acquits woman on these two counts. Next comes the assumption that woman is "inferior" to man, and by a special curse is made subject to man's rule by a God of the "superior sex."

The simple fact that their generative functions are centrifugal proves conclusively that female organisms are more complex than male organisms. Again: the fact that her mental powers are nearer the immature plane of childhood, because of their greater complexity, proves woman's superior fitness to rule the public mind in the earlier stages of its development; while her nearer kinship to her offspring furnishes the greater love needed to bear with the helplessness and unreasoning waywardness of infancy and youth.

Man's more mature mental powers are correspondingly better adapted to rule the public mind in its adult stage, when its mental and physical powers are self-provisional, when the intuitions of maternal love are less imperiously demanded. But there is and can be no line of demarcation between the inner kingdom ruled over by woman and the outer kingdom ruled over by man. Nations are simply the sum of the families

and individuals that constitute them, all of which are as fully controlled by the intuitions of woman as by the wisdom of man : the greater complexity of the former, which is less needed in adult life, is the exact counter-equivalent of the lesser maturity needed in earlier life. The fact that each form of force is constituted of quantitative equivalents of substance with diametrically opposite motive tendencies, primarily centripetal and centrifugal, which tendencies are eternally and omnipresently conjugated as the twain-in-one principle of essential formation, and which is represented in the male and female functions of generation on the plane of complex formation, clearly proves the utter impossibility of any disparity in their absolute and relative efficiency in any department of nature. The egotism of man and the weakness of woman in all their outer manifestations, either in savage or in civilized life, has had no effect whatever upon the eternal equilibrium of wisdom and intuition in the human species as a whole.

In discussing principles, personalities must be lost sight of. Just as man's brutality to woman in savage life brutalizes both sexes, so equal justice to woman in civilized life would result in the righteousness of both sexes, hence of society the world over. Although opposite, action and re-action are forever equal, whether for good or for evil. It is man's persistent disposition to inferiorize and shrink from a due share of home duties, and to superiorize and desire an undue share in national duties, that has procreated like sentiments in woman ; and it is his low estimate of woman's life-labor in home affairs, and his high estimate of man's labor in public affairs (which has resulted in depreciating the wages of mothers, domestic rulers, to the

lowest ebb, and of raising those of national rulers to the highest flood), that has made woman dissatisfied with her position, and provoked her to demand an equal share in national legislation. This unrighteousness is alike disastrous to families and to nations, for the simple reason their interests are inseparable. Man may sneer at woman's inability to redress her wrongs, and denounce her for sharing his contempt of home duties; yet this cry for justice comes from one-half of humanity, and it will not hush itself, even at the counter-cry of "infidelity," once so potent in silencing her complaints.

The worshippers of muscular power are blind to the fact that woman is the especial representative of a far superior power. Through all the dark and still darker ages of the past, woman has borne the heaviest burdens of life, has borne and reared their common offspring under every phase of man's contempt and oppression, because of her *assumed inferiority*.

The twain-in-one principle of growth or of progress, in any department of life, consists in the differences in the functional range of the *procreative* and *recreactive* force of the germinal substance involved. For example, the flow of fluids functionally male within afferent vessels begins at a lower altitude, and is reversed at a lower centre; while their return as female fluids, through the efferent vessels, is from a higher centre to a higher altitude. In all these ages, man's contempt of woman's life-labor has been moulding the public mind to its lowest roots into the same likeness, until woman's greater contempt of the severe and inferiorized labor of child-bearing and child-rearing has pervaded society to its topmost branches.

Conjugal and parental love are inseparable. Their

common fruitage is filial love, the diffusion of which is fraternal love. These love-ties are the bases of human harmony. Their reciprocities are the highest felicities imaginable, before which competition and rivalry, fame and flattery, sink into insignificance. Conjugal love divorced from parental love is suicidal: unmarrying and remarrying only increase the curse of unnatural living. As well expect that the pulsations of the venous and arterial hearts would be harmonious without the co-equal and concertive force of their common offspring,—the heartlets inwombed in the walls of their respective vessels,—as that the conjugal love of humanity could be harmonious without its equivalents of parental, filial, and fraternal love. The conjugal functions of man and woman are to the human species what the functions of the male and female hearts—the inseparable rulers of the sanguiferous system—are to the human organism. This is nature's "divine revelation" of the comparative usefulness of the two sexes of each and every species. The next predominant evil is the oppression of those of lesser physical power or of lesser mental power by those possessing greater. This evil is simply a different expression of the same rule of might over right consequent upon a lack of fraternal love, as the oppression of woman by her stronger brother. And, in the case of both, when the general fever which the leaven of its unrighteousness has produced from centre to circumference in the body politic attains its crisis by a radical change in all its institutions, the evil will effect the needed cure by showing man unmistakably that what he sows that he must reap. It will not only separate Church and State, but it will separate idolatry, with its churchal dogmas,

from the love of good in man,—the love of righteousness in all the relations of life. It will convince legislators that tariff taxations, with their artful deceptions and enormous collective expenses, are outrageous frauds upon producers; that free trade, and the support of government by a par value property-tax, without any exemptions whatever, is a far less intricate, as well as a far more equitable, policy.

And while, in the very nature of humanity, there are minds adapted to the various departments in the constitution of the body politic,—some adapted to lead in governmental affairs, others to excel in different professions, others to excel in commercial business, others in agriculture and manufacture,—all deserve to be respected and encouraged in accordance with their *personal* merits. Rulers, who should be persons of eminent talents, and exemplary in their deportment, and upon whose impartial judgment their constituents can implicitly rely, should be treated with the deference and affection due to worthy parents. There is little danger of an excess of worthy leaders, such as are willing to govern on the self-sacrificing, parental principle. The war of ideas that is to usher in this higher social state is already doing its work; and it is as truly the warring of gods—ideal, of course—as was the Trojan war. Contempt for those whose life-labors sustain the *life* of humanity, and their continuous robbery in every industrial pursuit, and their wholesale sacrifice in war by the various beasts of prey,—to whose greater shrewdness their physical, moral, and mental powers have been hitherto subjected,—are the seeds now ripening as the world's harvest.

The political economy of a nation is of necessity

the culminate representative of the domestic economy of the families that constitute it. In like manner, the political economy of humanity as a whole is the policies of the family of nations into which it is divided. That the best rules of practice in families are the best for a nation and for the family of nations is self-evident. The interests of humanity are inseparably related, either for good or evil, as is continually demonstrated by the mutually beneficial intercourse between families and nations, or by the mutually disastrous results of discords and wars. The fact that national civilization has steadily advanced in the degree mothers have shared equally in the family government, from which in savage life they are wholly debarred, is self-evidence that an equal share in national government by the female half of humanity is equally necessary to national advancement.

The greater muscular and mental maturity of the male half of humanity, which is assumed to be proof that the weaker and less mature sex should be subjected to the rule of the stronger and more mature sex, is the very strongest proof possible to be adduced that man is incompetent to represent the interests of, and to legislate (unadvised thereby) for, those whose attributes are foreign to his nature. What is best for each individually, regardless of sex or condition, is best for humanity as a whole, and *vice versa*. The rights of self-representation have their bases in self-needs; and who so truly as *self* knows what is needed? Woman is too lenient to rule, from man's stand-point; man is too severe, from woman's standpoint: woman sees greater wisdom in love; man sees greater wisdom in justice, best known to the world as dire cruelties.

and vengeful punishments, all of which demand the counter-influence of woman's gentler nature.

22. Our highest ideal of goodness is the good expressed through the human attributes. These, infinitized as those of an ideal being, constitute the God which each human intellect fashions in its own image. When unperverted from its childhood purity, under the guidance of mature judgment, the goodness of humanity is the highest *volitional* expression of love and wisdom known or knowable by humanity. Nature's creative powers, through whose agency the ex-nutritive essences of earlier and more mature forms become the constituent essences of later and more complex forms, are purely *automatic*. This, because the tendencies of essential substance under the modifications of space and time are *per se* its laws of formation and the structural proclivities involved in growth and reproduction. These "laws of Providence" pertain to the essential plane of being; whereas the love of good innate in the constitution of man's complex soul-powers, recognized as his religious sentiments, is a law unto itself in the sense that it is identical with the love of happiness or harmony which is everywhere co-existent, and inseparably correlated with sentience.

There is and can be but one religion,—the love of good. Man instinctively loves what he enjoys, or desires to enjoy. What he enjoys, or desires to enjoy, that he possesses, or desires to possess, as an attribute of his being. He cannot love any thing beyond the range of his desires, the possibilities of his selfhood. The *real* good he loves, and blindly worships as an extraneous God, is within himself,—is his religion, his faith, hope, and charity. All antagonisms below the plane of con-

sciousness of external effects are *inevitable*. Conscious knowledge is the recognition of forms of substance contradistinctly motile.

Its development necessitates local antagonisms. In virtue of its self-development under such conditions as predetermine its specific qualities, each sentient form of life is responsible to itself for the exercise of its sentient qualities: hence, in so far as man is conscious of the effect of his acts, and is competent to control his conditions, in so far his happiness, as well as its effect upon his surroundings, is self-determined. He is responsible to the good innate in his being for the effect of his acts upon his fellow-man, inasmuch as the effects they predetermine are reflected in turn upon himself. In cultivating the good within himself, each man creates a "kingdom of heaven" within the realm of his own consciousness. It is *within* this realm (never without) that man finds the "*rest* prepared for the righteous,"—the *sabbath* of the soul within its own sanctuary. When the heaven he craves exists within himself, his love of life and of the ever-living fruits outflowing from his consciousness of satiation will leave neither room nor cause for doubts of its endlessness. And when religion and science shall have been accepted for what they *are* and *effect* in and of themselves as the sum of man's ideals of goodness and truth, he will neither seek nor desire other reward than the fruits of harmony between his consciousness of inner needs and outer supplies which *they* respectively represent. The must-be-so of this is apparent when we reflect that the sum of man's conscious knowledge of the outer universe, which by sensation and cognition becomes his universe of conceptive creations, himself as a conscious being,

is *per se* his life, the life of the universe inter-repeated within itself as its life on the human plane.

Man's recognition of this principle of inter-repetition, which is necessarily inevitable and unceasable, is *de facto* a recognition of ETERNAL LIFE.

CHAPTER XV.

1. Of all the world's teachers, no one so clearly localizes and defines the characteristics of this universally-craved kingdom of heaven or harmony, as Jesus, the humble Nazarene. The "plan of salvation" taught by him was based upon the perception that the "peace and joy" so ardently desired must of necessity be the fruits of personal righteousness, hence must be within the realm of personal consciousness, in a word, *within the individual.*

This perception, with its self-evident premises, evidently originated with Jesus in the sense of being its first discoverer, as there is no proof of its promulgation prior to his time; while the righteous precepts, the practical fruits of which are the "saving qualities" needed, which he so urgently presented, had been given to the world in prior ages through Jewish rabbis and Pagan philosophers. The central idea in his plan of salvation being *personal righteousness*, his chief aim was to convince mankind of the worse than worthlessness of the ceremonials of religion, whose ostensible design was the propitiation of an angry God. Perceiving, as he evidently did, the purely symbolic origin of the feast of the Passover, which was celebrated in the month *Nissan*, whose planet-sign is the lamb, he publicly op-

posed it, thereby incurred the hatred of his own people, as well as that of other nations whose idolatries he repudiated. And yet we find those who worship him as a God (while failing to follow his precepts as a man) claiming *him* as the Lamb that was slain from the foundation of the world for its salvation, thereby perverting the typical significance of the ancient symbol that the world was saved physically by the annual sacrifice of the lamb species *into the actual sacrifice of the body and blood of Jesus* as a perpetual offering to atone for the sins of men as the only means of turning away the wrath of God.

“Work out your *own* salvation” was ever the simple but decisive answer of Jesus to all inquiries as to what one must do to be saved. How unlike the incomprehensible “plan” now taught in his name! The theology of the Christian religion is a most striking example that theories or forms of thought in past ages are parental to corresponding forms of thought in succeeding ages. As probable evidence that the solar system has its alternation of day and night, we present the far greater intellectual light embodied in the *symbolic ideals* of cause and effect handed down from prehistoric ages compared with the *real tenets* of modern theology. Moderns, who are wont to term the grand truths portrayed through these symbols “mythology,” or “pagan philosophy,” fail to perceive that many of them were accepted as facts, and as *fundamental religious truths*, during the dark ages in which Christianity and Mohammedanism took their rise.

There is no question among fearless seekers after actual truths, that the story of Adam and Eve is but a revision of the ideals embodied in the story of Pro-

methus and Pandora. That the story of the last-named unhappy pair preceded that of our so-called "first parents" is amply proved by its relation to astronomic symbols, which, judging by the facts symbolized,—facts that pertain to the Copernican system,—show conclusively that the gravital relations involved were understood and accepted prior to the acceptance of the Ptolemaic system, which evidently took its rise in a later and darker age.

Astronomers versed in these symbols find no difficulty in fixing the exact date when the groups of stars termed "the constellations of the zodiac," whose forms symbolize specific seasonal changes, were arranged in their present order, however remote the era when this method of recording astronomic changes was first adopted. Owing to the "precession of the equinoxes," it is about twenty-two centuries since what are now termed the "signs of the ecliptic," and these groups of stars, then termed "the signs of the zodiac," corresponded to each other.

Then the earth entered the constellation Libra, which is included in that of Virgo, and the sun entered the constellation Aries at the vernal equinox, nine signs prior to the end of the earth's lower winter solstice, at which time the sun-god of the ancients became reborn, or resurrected, after three days of stillness and burial in death-like travail.

2. The stars grouped to symbolize the sun's position during this death and rebirth were outlined in the form of a crab, whose sideway motion represents that of the sun in its passage along the tropic of Cancer, without crossing it.

Typally regarded, the sun ensouls the sign it enters,

is, for the time being, what it *does*: hence it became feminine—the heavenly mother—when it entered Libra on its descent into the perihelion hemisphere of the earth's orbit at the autumnal equinox. This marginal constellation between the male and female departments of the earth's annual cycle being *within* the constellation Virgo when the sun entered the constellation Aries, the lamb, on its ascent into the male or aphelion hemisphere, its equinoctial rays being above it as regards solar gravity, they fell perpendicularly upon and “overshadowed” it. Being impregnated by these rays, which are sent down from the heavenly father, the earth's paternal sun, this virgin mother gives birth to the son of the unseen sun-god at the expiration of each lower winter solstice, thus typifying the power of the invisible father-sun to lay down his life and to take it up again through the annual resurrection of his *son*, the earth's maternal sun. This heavenly mother was the virgin Astræa, the goddess of justice, who lived (that is, justice lived) upon the earth during the golden age; but, being offended at the wickedness of mankind during the brazen and iron ages of the world, she returned to heaven, and was placed among the zodiacal constellations with a pair of scales (Libra) in one hand, and a sword in the other.

It is through the “mediatorial” virtue of these equinoctial rays that become the annually sacrificed sun, that the world is saved by a continuation of seed-time and harvest. Indian and Chinese traditions, that maize and the tea-plant, which are among her harvest blessings, were brought from heaven by a virgin, indicate the once general acceptance of these symbols as signs of the times when the germs of life sent down from

heaven from more distant parent suns to the earth through the rays of its own sun-god, became its ripened harvest. This grouping of the fixed stars into the form of a heavenly mother, the mother of the earth's maternal sun-god, is not the only evidence that the ancients perceived that the heat and light of our sun became the life and light of our world, and that it is the offspring of parent suns outside the solar sphere; but the relies of the true theory of solar astronomy in the time of Pythagoras is proof that the mental light of a more enlightened age was not fully obscured by the night ages that must needs intervene between the golden age of a preceding and a succeeding equinoctial year; a solar night at the earth's altitude within it being the revolution of the earth's channel of circulation within the aphelion hemisphere of the solar sphere.

Another golden age, or summer of another such year, however distant, is sure to dawn in due time upon our now benighted world. Although, at first sight, the time of the axial revolution of the stratification of solar gravity, to which the earth is indigenous, a solar system's day at the earth's altitude, appears disproportionately extended, yet if it be true, as estimated, that a solar year, one revolution of the entire system, involves eighteen million annual revolutions of the earth-sphere, the number of solar days at the earth's altitude is about double the number of terrestrial days in a terrestrial year.

This gives us an approximate idea of the vast distance of the solar sphere from its maternal sun, and the wherefore that its distant dark rays "*forbid*" the fruits presented to the earth's inhabitants by the rays of the

maternal sun. This mother-sun, whose symbol was a serpent, because of its creeping serpent-like around the earth alternately north and south of its equator, presented to, "tempted" its inhabitants to partake of its fruits, while its light aided them in becoming gods by a knowledge of good and evil.

3. When the sun entered the constellation Aries, the Ram, whose golden fleece typified the blessings of a golden year, it was about three signs or months after its solstitial birth. Hercules, the "son of man," whose symbolic labors personate those of the sun, in the sense of becoming each zodiac form through which the sun successively passes, is still hidden by his mother the constellation Virgo, which is again "overshadowed" by the equinoctial rays of the invisible sun-God. We must bear in mind that what was occurring on earth at any specified time was symbolized in the heavens at an opposite meridian. At this era Hercules is the "sacrificial lamb," the "male child" brought forth by the woman "clothed in scarlet," and hidden from "the great red dragon," aurora borealis, which is waiting to devour him with the piercing frosts of early spring as soon as his birth becomes known. Having conceived his successor, the watchful mother is still "travailing in birth, and pained to be delivered." When the sun entered the constellation Taurus, Hercules became visible at the feet of Virgo. Having already "bruised the head" of the sea-crab Cancer, which "bit his heel," he next stands symbolized as the serpent-bearer, with his foot upon the scorpion's head, while with both hands he clutches the serpent, whose motions typify the sun's triumphant passage through the heavens.

The great water-serpent, Hydra, whose constellation extends over “one-third of the stars of heaven,” — so that, like the polar dragon, when one head or sign sets or disappears, another rises or becomes visible, — apparently immortal, was another most formidable enemy, and fought furiously against the lamb, which typifies seed-time ; and against his virgin mother, who typifies harvest, and whose constellation, when it sets in darkness, typifies gestation. Being protected by Jupiter, Hercules “grew in might and power until all his enemies — the enemies of spring-time generally — were overcome,” and seed-time and harvest fully established. Hercules not only subdued this water-serpent, which essayed to drown the woman, or harvest, by flood, but also the polar dragon, winter, which essayed to destroy the lamb by frost. He also subdued the intense ferocity of the lion, *Leo*, which typifies the intensity of summer heat. As this sun-god nears the winter solstice, and through age and ripeness sinks into darkness and death, he becomes feminine, thence rises again into light and life in a weak and immature state.

This change in the *sexual functions of his rays* is also typified in the marriage of Hercules with Hebe, the goddess of youth.

The alternate death on earth, and life in heaven, of the twins, Castor and Pollux, also typifies the succession of day and night, and of summer and winter.

4. Although the calf was regarded as sacred, and worthy of divine honor, and, by nations claiming to have existed when the constellation Taurus led the heavenly hosts, was deified and worshipped, yet the “lamb” took precedence, being unquestionably the first-born of the flocks ; and, of all the fruits that slept

in the earth, it was the first resurrected from the sleep of death by the “angel in the sun,” the light of life inherent in its rays. As its birth at the vernal equinox preceeded that of the calf one sign, or month, it was especially exposed to the long lingering frosts of winter,—the great red dragon intwined around both the astronomic and the magnetic pole. Being the type of helpless innocence and courageous trust, it is represented in the heavens as lying submissive, calmly fronting its frigid enemy, yet looking forward to others still greater; while the calf, a half-developed bull, is represented standing in a belligerent attitude, facing the incoming summer, preparing to battle the lion-like fierceness of its heat.

Although meek and sinless of itself, yet this divine lamb—“the first-begotten of the sun-god, and first-born from the dead that slept in the earth—must needs give up its life for the salvation of men:” otherwise the whole world must perish of hunger.

As the slaying of lambs occurred about the time the sun crossed the equinoctial at the beginning of autumn, it was symbolized by grouping certain stars in the southern heavens into the form of a cross.

This rosa-cross or bloody-cross is located on the equinoctial colure which passes through the vernal and autumnal equinoxes, hence is a perpetual memorial of the annual birth and crucifixion of the world’s physical Saviour,—of “the Lamb that was dead, yet liveth, that was, and is, and is to be forevermore.”

Although it is impossible to fix the date when the leading characters, especially the sun-god, whose names and works are symbolically written in heaven, became objects or ideals of worship, yet the known fact that

the zodiac constellations were grouped as signs of the seasons — the times of seed-sowing, of ripening, of harvest, and of winter's sleep — centuries before the rise of our modern religious systems, is a self-revelation of their true significance, which no tenet of these systems can gainsay by proving a higher origin therefor than the creation and salvation of nature *by and through its own laws as conceived of and interpreted by ancient sages.*

5. The innumerable multitude of "virgins" who sang praises to the Lamb, and followed him whithersoever he went," were not such in a sexual sense, being of both sexes, and holding the common relations of life, but were such as were "saved by the blood of the Lamb" (the type of herbivora or clean beasts) from defilement by eating the flesh of unclean beasts (carnivora and omnivora): hence they bowed in reverence, in common with the four beasts of prey, before the Lamb upon whose flesh they alike subsisted.

6. As regards "the woman clothed in scarlet who rode upon the beast with seven heads and ten horns," she is neither the Protestant Church as Catholics assume, nor the Catholic Church as Protestants assume but simply this same constellation Virgo. She is "the great wonder in heaven, the woman clothed with the sun, and the moon under her feet, who brought forth the male child, and to whom were given the wings of an eagle, with which she flew away from the face of the dragon (Hydra) for a time, times, and half a time." This multi-missioned Virgin is always represented with wings and with a scarlet robe, which latter typifies the sun's red or hottest rays at the autumnal equinox, when, for three and a half signs or months it is not visible to the earth's inhabitants; the constellation Hydra being

also invisible. Not only this, but "the earth has *helped* the woman," in the sense, that, at this season, it has "swallowed up the spring floods of the water-serpent." When these constellations become visible during the later harvest, over which this woman clothed in scarlet presides, she is seen riding upon this hydra-headed beast, in the sense that the constellation Hydra is *immediately below* the constellation Virgo, or nearer the horizon.

As the goddess of harvest, "all nations have become drunken with her wines, and the merchants of the earth have waxed rich through the abundance of her delusions." But as the stars of this innocent symbol still shine just as they shone centuries before the terrible denunciations against her doings, and against the depravities of nature generally, there is little doubt that they will continue to shine when these puerile fancies will have become obsolete under the reign of more profound emotions and more enlightened reasonings.

7. This "goddess of justice," whose motherly mission consists in meting out to the children of earth in autumn an exact recompense for the seed sown in spring-time, is continuously protected by the thunderbolts of Jupiter (the sun of suns, or "god of gods"), not only against the floods of the water-serpent, whose hydra heads and dark clouds extend through the entire rainy season of seed-time, and against the frigid dragons, north and south, and other external evils (symbolized as fiery serpents and beasts of prey), but against the evil influences of the earth's own internal gods, Pluto and Neptune, and the Prince of darkness in the air through the agency of their genii,—the Furies,

Fates, and Demons, prototypes of human appetites, passions, and cogitations.

This common battle of the more and the less ancient sun-gods for the welfare of their common offspring, the earth, against the fury of the elements surrounding it, is a beautiful symbol of parental protection. It was man's *acceptation* of the battlings of nature as his rule of action that constituted the heroic age. Perceiving that all forms of life were forced to overcome the elements and the forms upon which they must subsist, or perish of hunger, humans as well as brutes joined in the common battle for life. Their heroic exploits accorded with their heroic symbols. And woe to the man or nation that fails to be a hero in this common battle of nature, that essays to be "fought for" and "supported" in ease and luxury! Back of the starving poor is nature's highest stimulus,—*the heroism of hunger*.

All history points the warning finger, and cries, "Beware! Beware!"

As the better earthly conditions that surrounded our golden-age ancestors return as still better conditions, man will learn to accept the laws of nature as the only "general providences," and the aid of his fellow-beings on the various planes of endless life as the only "special providences." The laws of human life are what the laws of nature, the motivities of its empyreal agents, have become within each individuality on the planes of human perception and expression. These ancient heaven-writ symbols had no reference to an after-death existence, on whose planes of life nature's forms subsist upon their common fruitage. They referred solely to their common battle for sustenance on

our immature plane. Evidently the story of Cain and Abel is founded upon an ancient symbolic representation of the comparative acceptability and continuance in use of animal and vegetable food. They were the first and second offspring of "Adam or red earth," and "Eve," the female or maternal principle, who was a *part* of "red earth," or what the male principle of nature had become on the plane of human development.

Vegetable food, or the fruits of Cain's labor, were the earth's first-born: animal food, or the fruits of Abel's labor, were secondary. Animal food being more acceptable to human appetites, the sacrifice of animals was regarded as more acceptable to the sun-god, by whose later rays they were procreated; and the choicest fruits of the vegetable kingdom were regarded as secondary in a later age. The first or vegetable kingdom was wroth with the younger brother; and, in their wrestlings for predominance, "the elder brother overcame and slew the younger, whose blood cried from the ground for vengeance." This symbolic prophecy by more ancient sages of the ultimate disuse of animal food and the degradation of the "blood of animals" as common soil, once so sacred as the most acceptable offering whereby to propitiate the anger, and satiate the appetite, of the earth's Creator, reveals perceptions of the progressive tendencies of nature far in advance of those in the later age of "inspiration" (?) It reveals an age when the powers of nature were regarded as self-creative and self-provisional; an age when the rays of our sun (priorly those of the suns of consecutively more-embracing spheres) were accepted as the only agency or agents involved in the creation, or in the constitution of the objective universe.

8. It is an unquestionable fact that the earlier systems of worship are gradually becoming superseded, not by the later, as the advocates of the latter vainly suppose, but from a higher appreciation of what is just between man and man in their common struggle for existence.

This is the case, not only in countries subjugated by nations professing Mohammedanism and Christianity, but it is asserted on good authority, that, in a single district in Japan under native rulers, no less than seventy-one Buddhist temples were converted into dwelling-houses last year; and that, during the past six years, no less than six hundred in the same district met a similar fate. When this "leaven of righteousness" shall have extended to all nations, the redemption of humanity from beastly errors will have come. Then those who have the "mark of the beast *in* (not on) their foreheads," those who are beastly in their battle for life, shall be cast into the outer or beastly darkness which they have brought upon themselves. From this *self-punishment* there is no redemption here or in the hereafter, except through pure, unfeigned *self-righteousness*, — by doing unto others what they would that others should do unto them, thereby developing the "kingdom of righteousness, or of heaven within themselves."

9. There is ample evidence *in* the symbols of the present worshippers of the Triune Deity — Brahma, Vishnu, and Siva — that they have been handed down from seers and philosophers who recognized in the three prime colors of the rainbow — nature's symbol of seed-time, ripening time, and harvest-time — the triune forces of light, which, through different modes of mo-

tior., express red light, yellow light, and blue light. These colors are the symbols of nature's prime forces by which forms are aggregated, equilibrated, and segregated. Hence Brahma, the creator, symbolizes the out-growing or acid properties; Vishnu, the preserver, the static or saline properties; and Siva, the destroyer, the collapsing or alkaline properties, of the elements constituting the colors red, yellow, and blue.

Not only is three the basic number in the harmonies of light and of sound, but the three-sided triangle is sacred as the symbol of form; form being impossible with a lesser number of outlines. Christian Trinitarians wonder why Oriental religionists, with these ideas of a trinity of god-powers unitized as one, never build temples for, or offer sacrifice to, or worship, the Infinite Brahm. When questioned, they reply, "Shall we insult the Infinite Spirit that abides in all essences, and exists everywhere?"

In so far as they perceive that offering aid, or provisions, or praises, to the *all* of power, of presence, and of wisdom, is but mockery, in so far their perceptions of infinity exceed those of modern religionists. Inasmuch as worship and idolatry are one and the same, alike inseparable in every system of religious thought crystallized as creeds and modes of adoring the powers manifest in natural phenomena, all are alike idolatrous, whether their origin be ancient or modern, or whether the idols be men, or things, or ideal beings. And it is as impossible for an idolater to understand nature as for a rich man who worships external wealth to enter heaven by the creation of an inner kingdom of righteousness. Both alike fail to perceive that the ideals or souls of external symbols when cognized are forever

subsistent within the realm of consciousness as the agents of sense-perception, the sum of which is the soul of their subjector, in the sense that the soul of the objective universe is miniatured as the soul of man in accordance with the status and extension of his perceptive powers. The mental status of each man is necessarily revealed in hisceptive creations. Ancient sages recorded their conceptions of the blessings of seed-time and harvest, effected through astronomic changes in the unchanging structure of the heaven of heavens beyond the ever-changing solar orbs. The imperishability of these blessings are symbolized in the imperishability of the stars that make up the zodiac constellations.

These groups of stars, not only recorded the return of seed-time and harvest promised by the rainbow, which were so arranged that they represented the times of the genesis of like earthly forms, but the moral and heroic status of the earth's inhabitants were recorded in characteristic forms; the story of their lives being related in the symbol of each.

10. It is a curious fact that the spirit of the ancient feasts in honor of the annual re-births of the son of the sun-god, himself as a perpetual sacrifice for the good of man, has been kept alive, in the symbolic religion of these older nations that never regard the astronomic changes they signify, religiously, while their literal significance is kept alive in the Christmas festivities of more modern nations as the *soul* of their newer theosophy; other days and other seasons related thereto, being regarded as sacred, and worthy of religious observance.

We present these facts purely from a conviction that

humanity everywhere should know the origin of the authority before which reason is required to bow, and for the support of which every other faculty is under tribute. The worshipper is not only guilty of mocking the Infinite Good, but in so far as he neglects to aid his fellow man in becoming better, in so far he is guilty of robbing the Infinite by not adding to the sum of goodness the measure he is adapted to bestow. In like manner, he who perceives a truth of vital importance, but unpopular, or an error injurious in practice, but popular, and fails to proclaim it as such, lest *he* become unpopular, virtually buries his talents, thereby proves himself an unworthy servant of the Infinite, the growth of whose goodness is the usury of the talents given out in the development of humanity. But every new truth, whose growth is that of the soul that accepts it, like the chick *in ovo*, must needs attain its birth-force by subjecting the *darkness* and *pressure* that conditions its existence as a higher light and a superior power. The same is true as regards the resuscitation of the *spirit* of these ancient theories and their resurrection to a higher appreciation by re-embodiment in language adapted to our age. But for their presentation through objects whose characteristics symbolize the outworkings of nature's laws, they would have been utterly lost to the world ages ago,—a loss far greater than the weird perversions to which they have been subjected have caused.

11. In the deeper strata of Hindoo theology we find a "self-living, all-pervading essence in the neuter gender," which, in its never-ceasable transformations, became both male and female, and the structures and functions of both sexes. This essence in its primordial

condition was termed “Chaos,” and recognized as the prime cause of all existences (in the sense of “existing in all essences”) by Orientalists generally. As this primordial condition was one of darkness, they recognized chaos (the elements *in esse*) and darkness (the elements *in embryo*) as the parents of “night,” thence that this most ancient goddess, from her union with her brother “Erebus,”—the male principle of darkness and who, it was assumed, ruled over the regions of darkness in the earth’s interior,—“brought forth day and the light.”

Now, we assume that this fable was a symbolic record of their perception that two rays of darkness of equal force, from opposite directions,—that is, from the earth’s night-hemisphere and from its interior,—would produce light, on the same principle that two waves of light of equal amplitude and intensity, from opposite directions, produce darkness; and also the perception that the generative forces of nature are essentially dual and interchangeable, and structurally counter-forcitive on the complex plane: hence their recognition of the numerical equality and equal efficiency of the gods and goddesses as the culminate generative powers of nature through which its “divine, self-living essence” became expressed. This first female deity was not only the mother of formation on the objective plane, but of its attributes on the human plane,—the appetites, passions, loves, and perversities of mankind under its various developmental conditions. The Parcæ, or Fates, who presided over the birth, the life, and death of each, and the Furies that administered the vengeance of Pluto, and the goddess of discord, were her daughters. Somnes and Morpheus, the

gods of sleep and dreams, were her sons, all natural descendants of outer and inner darkness; while the goddess Mors, or Death, was born of Night, without a father. Hence the tradition that "woman alone brought death into the world, and all our woe," the light of the sun-god being the tempting serpent that bade her seek to become godlike by a knowledge of good and evil, and that, though perilous, "*she should not surely die.*" The truthfulness of this beautiful symbol of the triumph of Life and Light over Death and Darkness, the lower conditions whence they are outborn, is unmistakably demonstrated in the continuous progression of humanity.

12. The warrings between the subtler and stronger elements of nature were symbolized as the struggles and artifices of the maternal principle to bring forth and to protect their common offspring from the deadly jealousies of the paternal principle. For example, Saturn, or Time — son of Cœlus or Uranus, Heaven or the Universe, by his sister Terra, the Earth — was promised his father's kingdom by his elder brother Titan, provided he reared no male children. So Saturn, or Time, swallowed up his sons — the divisions of time, or the interspheres of the universe — as soon as they were born. By artifice, his sister-wife saved Jupiter, Pluto, and Neptune, — a trinity of male deities.

After prolonged warrings, Jupiter succeeded his father as ruler of a less embracing universe.

Pluto, the earth's interior creative principle, and Neptune, the preserving principle of water, and Jupiter, the ripening principle, were respectively the gods Brahma, Vishnu, and Siva, of the Hindoos, in the sense of being what the Infinite Brahm, or Saturn, the god of Time,

had become. Although too intricate to present in detail, yet, back of the innumerable perversions by modern religionists, we find ample evidence in these symbolisms that Juno and her brother-husband Jupiter were respectively our sun and the sun of the sphere within which the solar sphere subsists, in the sense of being the mother and father of the sub-Saturn universe, and that they are identical with the parental principles "Isis and Osiris" of the Egyptians. The second finding of Osiris after the winter solstice, and his entrance into the moon, which he was supposed to fecundate, that it, in turn, might fecundate the earth; and the birth of Horus, the son of Isis and Osiris, who represents the sun at the summer solstice, or its recall from the winter solstice, the lower world,—were celebrated religiously; all of which were honors paid to the unseen sun of suns, Jupiter or Osiris, through the visible sun. As the earth's inhabitants persistently worshipped the visible sun,—although the priests of Jupiter taught that back of its generative powers were those of the paternal sun,—these contentions of men were symbolized as contentions between the maternal and paternal suns. Although equally generative, yet the dark, indirect rays of the latter virtually *forbid* the fruits so bountifully generated by the latter's rays.

Perceiving the visible sun creeping around the earth, and bringing seed-time and harvest to its inhabitants, for which it received divine honors, the unseen heavenly Father, ever jealous of his prerogatives, cursed the serpent-sun, and doomed it to creep upon the earth for all time; while the representative of the maternal principle of earth-life, woman, received a twofold curse, for eating of the Tree of Life, thereby becoming the

mother of Light. Hence the tradition of the ancients, that the planet Venus, or "Lucifer, the son of Light, or Morning," which is always crescent-shaped, was disrupted, and most of it "cast out of heaven by Jupiter," for attempting to lighten the earth, thereby inducing mankind to worship the visible, instead of the invisible, powers of nature. As the unseen and seen are essentially one as heat and light, and organically one as the soul and spirit body of the universe, there is needed only a conscious recognition of their equal and inseparable efficiency and beneficency to end all strife between man and man, and between their respective deities. As the sphere of Jove, or the sub-Saturn universe, included its own interspheres, those of his wives, through whose interspheres and interforms *his* became expressed, he is said to have swallowed his first wife, Metis, during her pregnancy, fearing she might bring forth a child like herself, who exceeded both gods and men in knowledge, whose power might equal his as his equalled that of his father. The subsequent birth of Minerva, the goddess of wisdom, from the brain of her father, illustrated the fact that the Divine Essence of Wisdom is inborn from a still higher sphere.

Jupiter, the sun of suns, being the father of Hercules, whose labors typify those of our sun, he is represented as being continually wroth with men because of their idolatrous worship of the more obvious source of the earth's fruitfulness, and their forgetfulness of the far mightier creative powers of the sun-gods, to whom our sun and all it illumined owed their being. It was customary to offer human victims on the altars of the more ancient sun-gods Jupiter and Saturn; but

Hercules, the representative of our sun, abolished this barbarous custom, and substituted "small images of clay" in its more civilized system of worship.

It was a season of great lamentation with the Egyptians when their sun-god became feminine, or Isis, within the perihelion or lower hemisphere of its annual cycle, and one of great rejoicing after the perihelion solstice (our Christmas), when it began its ascent as Osiris toward the aphelion hemisphere of the earth's orbit. As all these sun-gods or parental centres of nutrient rays are alike unmindful of the sacrifices offered by their worshippers, these offerings should be one and all substituted by simple expressions of joy and gladness, and by offerings for the world's common weal, such as will make glad the common heart of humanity.

These annual blessings of our heavenly luminary, like those bestowed by human parents, who are fully repaid by the joy and gladness of giving, are purely made up of the unripe and over-ripe germinal or nutrient and ex-nutrient essences of plus and minus mature spheres and forms *in transitu* from the primordial atmosphere of Infinite Being to and from its central heart, the nucleus of infinite gravity. The tradition that "no one can see the face of God and live" is true in fact as regards seeing the sun of a super-solar sphere.

We see the rays of the especial stratum of our sun's photosphere, whose grade of coimmunition corresponds with that of our stratum of the earth's atmosphere. The rays of all other grades are either too refined or diffused to be cognizable on our normal plane of sense-perception. But, when our essential organisms shall

have become re-embodied at somatic death by a more refined grade, the photospheres of all visible objects on that plane will necessarily correspond in grade. Their nuclear essences being plus coalesced in the degree their atmospheric essences are plus comminuted, compared with their condition on our present plane, their range of perception will be correspondingly extended, and sun-gods of more inner and more outer spheres will reveal themselves to our sense of sight. The photospheres of objects which reveal their spirit-forms on our plane of sensible expression are intermediate in motility, in "the modes of moving" by their essences, between the tendencies inherent as our essential powers of sense-perception on our present plane, and those of our perceptive powers on the *post mortem* plane.

While it is true that the inner-soul and over-soul of nature, its twain-in-one maternal and paternal principle, is forever unseen, yet, in the combination of their essential representatives as the photospheres of its infinitude of forms, they are *per se* the spirit-form of nature on every plane of being.

As we know nothing of substance aside from its essential qualities, our knowledge of Nature is purely a recognition of its essential or spiritual qualities.

14. From a careful review of the entire foregoing assumptions, all of which we claim are fully licensed by what is revealed in and through the structures and functions of nature's various organisms, when viewed in the order of their needed efficiency and necessary advent as nature's consecutively more complex organs, we arrive at the following deductions:—

1st, That there is an unending source of *essential substance* in a condition primordially germinal; and

that, as such, it enspheres the entirety of substance in form, or the organism of nature; and that, in a nutrient sense, it represents the male principle, or outer good, within whose infinite embrace "all things live and move, and have their being," its eternal co-equivalent of essential substance, which has become counter-spherically conditioned as the nuclear department of every sphere and spherule of infinite gravity, being the female principle, or inner good, in the sense that, in its *re-ascension*, it is basically nutrient in virtue of having *descended* to the embryonie plane of *formation* from its *prime atmospheric condition or unmodified diffusion*.

2d, That all forms of substance, which are necessarily *forms of force*, became existent *between* these prime counter-foretive equivalents of essential substance, and that these forms, in virtue of being compounded of equal parts of substance on the outermost and innermost planes of essential being, inherit the ability to build up *their* intermediate forms, or bodily organs, between *their* prime outermost and prime innermost essential germs, their nutriment being the counter-sexual essential germs fruital to nature's organs, *their* organisms as a whole, on different planes of maturity.

3d, That the sexual principles involved in the genesis of form are *per se* the centreward and ex-centreward movements of these equal quantities of essential substance in consequence of the *spherical form* of gravity; that is, the dynamic equilibrio of the co-equivalents of each sphere and spherule is continuously maintained in virtue of its counter-spherical position in the aggregate; the female equivalent — the content of the square roots of space within and from the centre of each sphere and spherule, regardless of its transpositions as

substance — being centrifugally forcitive in the degree the male equivalent, the content of the squares of space within these spheres and spherules from their peripheries centreward, is centripetally forcitive. Hence that they are continuously in equilibrium statitically regarded.

4th, That essential formation is the combination of the ultimate representatives of the female and male principles of generation ; each ultimate of the former being inseparably ensphered by an ultimate of the latter, regardless of the sphere or form to which they are constituent.

5th, That the first step in complexity of movement in other than linear and circular directions is the result of the combination of these twain-in-one ultimate spherules *in embryo*, so conditioned spacially and timally, that they represent the conjugated counter-forcitiveness of the female and male principles on the embryonic plane of *specific formation*.

6th, That this necessitates basic and super-basic and intermediate fulera to limit and modify the range and direction of their different elastic tendencies, all of which fulera are vascular and temporary. This, because when they can no longer become differentiated to accord with the ever-increasing motive powers of the essentially dynamic entities that circulate within them, they must needs be left within the stratum of space to which each form as a whole is indigenous, when these essentially organized entities — the plus mature counterpart of the vascular organism — which as such is the sum of their essential ova, shall have become outborn therefrom, and inborn on the super-mature or *post mortem* plane.

7th, That the prime basic and super-basic nutriment, or female and male germs, that become the essential constituents of nascent and maturing forms on our plane of sense-perception, are fruital to corresponding forms on the to us, *post mortem* or post-mature planes, nuclear and atmospheric, re-modified by corresponding condensation and expansion within the generative organs of corresponding females and males *on our plane*, by which means the elasticity of their substance is rendered counter-forcitive and combinable as the common offspring of the two sexes of each species.

8th, That, when combined as such, their conjugal co-operation is purely mechanical and self-conditioned within their respective spheres of gravity or ranges of motive force; that is, their *intrinsic* vitality is eternally intact under every possible *external* condition. Hence, although apparently dead, the centrifugal elasticity of the earth's solid and liquid elements continuously counterparts the centripetal clasticity of the elements by which they are atmosphered. The same is necessarily true as regards the equal efficiency and intactility of the motive forces inherent in the substance of the nuclear and atmospheric organisms of nature's every combination of mechanical powers.

9th, That each plane of being, or of sentient existence, is constituted of equal quantities of essential substance, which, as counter-sexual germs, were fruital to plus and minus mature planes; the atmospheric or plane of sensible expression being minus complex in the degree the nuclear or plane of sense-perception is plus complex compared with a mediate degree of maturity and complexity. That is, the female and male equivalents are so coalesced and comminuted, that

their spacial and timal conditions and counter-tending forcitiveness represent those of the earth and its atmosphere as a whole. The spacial disparity between the elements of water in a liquid and in a gaseous state, which is as one to three thousand, clearly illustrates the spacial disparity between nuclear and atmospheric substance generally. As it is the electricity forced into and from these elements that renders them combustible and non-combustible, it is readily seen that burning electricity direct dispenses with the power involved in their gasification.

10th, That, from the dividing line, between the nuclear and atmospheric equivalents of each sphere, the former, in the aggregate, is increasingly coalesced centreward in the degree the latter is comminuted ex-centreward, in virtue of which at the extreme centrifugal elasticity of the substance of each lower atmospheric stratification, the over-expanded substance becomes consolidated as the base of a higher plane of comminution; the out-growth of the earth-sphere's interforms into higher planes of sentient existence being the attainment of greater freedom to express the tendencies inherited from lower planes.

11th, That the vitality of each form is the intrinsic elasticity of its essential constituents; that its sentience is their motive tendencies modified by the spacial and timal conditions which determine their arrangement and complexity of movement; while its consciousness of external forms is proportional, not only to the refinement and consequent complexity of the agents of sensible expression of which it is constituted, which determine their projectivity and subtlety as its agents of sense-perception, but to their *freedom to express their*

inherited motive tendencies, those of the ancestral forms to which they are respectively fruital.

12th, That, inasmuch as the essential constituents of form are purely empyreal, they are adapted, not only to aggregate on the same plane in like forms as those to which they are fruital, but, under adequate conditions, to re-aggregate in the same forms *subsequent to their segregation*, in the sense of being temporary apparitions of their whilom objective organisms subsequent to their somatic separation.

13th, That inasmuch as the essential agents that constitute man's essential organism — his soul or selfhood — represent the vitality, the sentience, and consciousness of the forms to which they are respectively fruital, — all of which become self-aggregated as the sum of his vitality, his sentience, and consciousness, — his essential characteristics are self-formed under *existing conditions*; which conditions determine the elastic tendencies of the substance involved, thereby making it a law unto itself, impelling it to do ever and forever that which the needs of the forms it becomes demand.

14th, That inasmuch as these conditions are the points of space and time where and when the substance of these essential traits or agents have been moulded within the omnipresent *here* and eternal *now* of infinite being, man's traits, through which those of every other form constituent thereto are sensibly expressed, are *de facto* those of the Infinite inter-repeated on the human plane.

15th, That inasmuch as these essential soul-powers are *substantially* the essential germs of nature's inter-forms subjected as man's perceptive agents on his present plane of sentience, and which as such repeat the

modes of motion that represent their abstract qualities, they will be the same soul-powers or perceptive agents on the *post mortem* or higher plane, when re-embodied by the essences that sensibly express the soul-powers of its interforms.

As man's perceptive agents must be embodied by substance of corresponding grades of refinement in order to cognize the "representative image" of nature on lower and higher planes of comminution or maturity and consequent complexity of movement, which gradation does not change its intrinsic powers as the essence of infinite being, man as *the sum thereof is necessarily co-infinite in being what this essence has become on his present plane of existence.*

15. In tracing the reciprocal relations between the members of a family, or those between the states that make up a nation, or those between the nations that make up the human family, we perceive that they are involutions of the reciprocal relations that exist between the planet-spheres that make up the solar family. Not more truly do the older planet-spheres need the influence of the younger in the matter of moulding the rays of nutrient substance from the maternal sun, and the younger need the influence of the older in moulding the paternal sun's rays, than older members of a family, or older states, or older nations, need the more complex emotions and reasonings of the younger; while the younger need equally the influence of the more mature emotions and reasonings of the older. The younger planet-spheres are of necessity subject to greater degrees of super-pressure than the older, which necessity is equally beneficial to both, inasmuch as the greater immobility and more numerous outer bearings of the

former condition the greater mobility of the latter, and the *expression* of their equally numerous inward bearings; their actions and re-actions being equal in force, but in opposite directions.

Undoubtedly the more or less direct counter-pressure of the inferior and superior planet-spheres upon ours have caused the numerous local convulsions so plainly revealed in the earth's surface strata, which also cause like but less disastrous disturbances in the present. But for these peculiar positions, the same chemical changes might have occurred slowly, leaving no trace of the struggles our world passed through in its younger eras. But these periodic unfavorable positions are inevitable; and all the sun-gods in the universe are powerless to aid in preventing their terrible effects upon the earth's inhabitants, however ardently invoked. The only remedy possible is the outgrowth of our sphere into higher spherical positions and more mobile or mature conditions.

The spacial and timal conditions of our world at its present altitude or degree of maturity are *per se* those of its human interforms.

Now, the first need of humanity is the *knowledge* that no being, heavenly or earthly, is at fault, or accountable for the presence of these inevitable conditions and their natural sequences. The next most important need is the *knowledge* that these conditions may and can be so modified by the powers of man that they will contribute to the comfort and happiness of every department of his being. If fully assured that there is no personal Creator, whose anger and jealousy demand continuous propitiation and flattery, and that our world can be changed from the hell it now is to the heaven so ar-

dently eraved by all, ruling minds would at once adopt a policy calculated to bring about the desired change by peaceful means, and thereby avert the inevitable revolutions that now threaten the governments of the entire family of nations. The testimony of nature in the past and in the present; and the experience of humanity in the past and in the present, are the truthful sources where every unprejudiced investigator can obtain this knowledge. The natural conditions of the human family are the same only as they are modified by climatic differences; and, as regards general principles, we find very little difference in the general policy of nations; and the political changes during the records of history show an equal or proportional improvement in each, although different races represent different stages of mental maturity.

16. By the policies of all, human lives are periodically offered on the altars of war in defense of their respective systems of worship, it matters not whether the idol be an objective symbol, or an ideal being. And the cost of erecting the magnificent temples and educational edifices devoted to idol-worship, which involve billions of untaxed property, is either from the earnings of the people direct, or indirectly through their governments; while the humble homes or lesser effects of the toiling millions of wealth-producers are taxed beyond endurance to sustain these and other crushing governmental policies, and the exorbitant salaries of government officials. What are the trifling sums, so pompously announced as "charities," collected for the poor within these temples, compared with the millions involved in sustaining their symbolic rites and impractical ceremonies, all of which, by a direct tax upon their self-

respect, through the influence of leading worshippers upon public opinion, are drawn from the people, millions of whom are laboring at starving wages, or starving, for want of work, within sight of these temples where the fashionable extravagances that are rapidly leading on to universal bankruptcy are weekly exhibited !

There is no antagonism between the needs of humanity and religion, religion being purely man's love of goodness and love for his fellow-man, with the hope of a continued conscious existence after death, and the practical justice and joy through which his loves and hopes are expressed ; whereas idolatry, which is purely the worship of self, in the sense that each man's ideal god is what he conceives his own attributes would be under the conditions which he conceptively creates as the surroundings of his god, is diametrically antagonistic to the most sacred ties of human relationship. This ideal of self under these self-conceived conditions is *de facto* man's ever-present guide and saviour. Its whispered encouragements, its warnings, its reproofs, and other admonitions of conscience, are just what he needs to direct and aid him in bettering his conditions.

It is these ideal god-powers of himself under these conceivable conditions that create his belief that he is the *image* of his God. They also create his desire to become *like* his God practically.

17. Could man but perceive that the spacial and timal modifications of the substance of things, which determine their properties or attributes, are purely changes in its "modes of motion," and that the properties or attributes recognized are of necessity what the *media* through which they are revealed present, he would at once perceive that what he cognizes as him-

self, his body or physical senses, on the nuclear or objective plane of human development, is what his mind or metaphysical senses on the atmospheric or non-objective plane have created as their likeness *in embryo*. He would at the same time perceive the *wherefore* that the physical or immature senses are continuously reaching out toward these parent senses through whose more mature embodiments their needed nutriment from consecutively more mature planes is moulded *in transitu*.

Being fruitful to every element of the nuclear and atmospheric organisms, or physical and metaphysical senses of its parents, the attributes of the human embryo are *archetypally* whatever the substance involved inherits, back through every link in the ancestral chain, back to its unmodified or primordial diffusion on the chaotic plane.

Hence, on the line of its ascent as form, the atmospheric germs build up their ova-embodiments as indispensable fulera on its every plane of maturement. Although man's metaphysical senses are to him what he perceives them to be through the medium of his physical senses, yet his vital nutriment *in utero* and in infancy is as truly supplied by his metaphysical senses as when in maturity his physical needs are supplied by their conscious volition. Now, the grand desideratum in metaphysical science consists in discriminating between the absolute properties of the forms of substance that make up the objective universe, and what their representative or fruitful essences reveal when subjected as man's physical senses.

If, as assumed, the central nuclei of these representative spherules become aggregated as the walls of

the vessels that make up the vascularity of man's organism, the sum of his organs of sense, and the super-central nuclei become aggregated as the dynamic entities that circulate within and around these walls, then the modes of motion, or properties of the latter that represent the metaphysical or atmospheric powers of the forms to which they are respectively fruitful, are moulded *in transitu* by the former that represent their physical powers. They are respectively on the plus complex and plus mature or female and male planes of development. They are eternally distinct, yet inseparably interlinked as successive steps by alternate poisonings and elevations during their equal progress in refinement.

18. If there be no idol between himself and nature, then man's soul is *en rapport* with the soul of nature; and he not only recognizes his infinity in perceiving that the microcosmic organism which his creative powers have individualized is of necessity an inter-repetition, or miniature representative, of the mechanical powers co-operating as the life of the Infinite organism within which it is being developed as an indispensable organ; but he recognizes his commensal gestation or inter-communion with the intelligences of all past ages in their progressive refinement within the, to him, future worlds toward which he is progressing. In a word, he not only perceives that his selfhood—the I AM of his subjective universe—is directly nourished by the thoughts of the INFINITE I AM, the sum of the subjective universes of the infinitude of intelligences within its embrace; but he perceives that he *is per se what he senses*.

And in perceiving that these thoughts are actually forced within his mind, in like manner as air is forced

within his lungs by atmospherie pressure, he not only perceives that the life of the Universal Organism is maintained by forced respiration — by the condensation and re-expansion of the metaphysical germs forced within it by the counter-pressure of its surrounding atmosphere, which germs are of necessity whatever they become as the facts of nature ; but he perceives that as truths they are *unrevealed* to him who cannot or does not perceive their practical values in human economy.

Again : in perceiving that his mind and its embodiments on its successive planes of evolution, which constitute his self-existent soul, or selfhood, are what the atmospherie essences subjected as nutriment have become, he perceives that mind is not a *personality*, but an *Infinite Principle* essentially indivisible.

19. This was Plato's perception of "pre-existence," and the ground of his assumption that man's ability to "recognize" the forms of substance that make up the objective universe is because they are "copies of the ideas *innate* in his constitution." It was also the ground of his belief in the soul's immortality. He taught that "Reason, or God, the Supreme Good, is the seat of the intelligible world, or of ideas; and that mind was produced prior in time, as well as in excellence, to the body, that the latter might be subject to the former." He also taught that "the universe, being animated by a soul which proceeds from God (its archetype having been eternally existent within his reason), is the Son of God, and that several parts of nature, especially the heavenly bodies, are gods."

These sun-gods, whence "animal life proceeded," were evidently the lesser "vortices" of Descartes.

There is very little discrepancy of opinion among all profound thinkers, ancient and modern, as regards the infinite diffusion and inseparable unity of the essence of life and sense ; the great mystery of nature, and the subject of an endless variety of opinions, being the aggregation of this essence as separable forms and individual personalities. All alike seem to overlook the fact, that, under reverse spacial conditions, these forms and apparent personalities become segregated into like essence, or spirit. This positive evidence of its homogeneity proves that its different conditions are *per se* two planes of mobility or maturity, viz., that of substance as essence or spirit, and as substantial forms. To the superficial thinker, who accepts his body or physical senses as his *person*, and accepts that by which they are nourished as a *personal god*, there is an endless antagonism between their respective interests.

As this personal god is what each human creator imagines he himself would be under the god conditions each conceptively creates, and leading minds differ so materially, very few are able to agree as to the attributes of their *common* personal God. As a consequence, each especial ism is made up mostly of assenters, who never attempt to think for themselves, or give a "reason for the hope within them;" while the self-inspired and self-chosen few explain what their common god demands. That is, what *they* would demand as personal rulers, with unlimited power ; although, in virtue of the inevitable progress of humanity, religious teachers are at heart *better* than the god whose demands and traits they assume to repeat and describe. It is a significant fact that the numerical increase and prosperity of isms are always in proportion

to the ignorance of the masses under their influence, and the shrewdness and autocracy of their exponents and leaders.

20. Now, while there is no question that certain minds are often or habitually "inspired" with thoughts apparently far above their supposed capacity, the question at issue is, Whence the origin of these thoughts?

As these "inspirations" are upon every subject open to discussion and discovery, they indicate the predominant capacity of the individual inspired. The religionist, the poet, the philosopher, the scientist, the naturalist, the machinist, and even the rulers of nations, and their military chieftains,—all alike, whether regarded as good or bad, have their special inspirations, and their special ideas as to their *source*, and *why* they are thus forced upon them.

The religionist assumes that they are revelations of the will of his God, and that they are given to him because he is *better* than other men, in order that he may *teach* the people how to please this personal God, and thereby escape eternal punishment.

It matters not whether they are *supposed* to be the "whisperings" of the religionist's God, or those of the poet's Muse, or those of the philosopher's Demon, or those of Genii or of Guardian Angels, or of Spirit Friends, to the individuals under their respective supervision, their source is the same. They are what is forced within the range of the atmospheric or metaphysical senses of each *from the common atmosphere or metaphysical range of the physical universe*, inter-solar and inter-stellar *ad infinitum*.

The physical universe is the common physical senses of every form of life and sentience that has been

evolved from its spherical nuclei or nuclear organism from the infinite past to the present. The interchange of essential germs between these spherical nuclei, through the medium of their atmospheres, is but the sum of the interchange of essences fruitful to the forms and organisms that constitute *their* physical organs. In like manner, man interchanges thoughts with his fellow-man, either directly through their contiguous metaphysical atmospheres, or indirectly through that of the planet whence they have been evolved; the prime or initiatory pressure being the weight of nature's primordial atmosphere, and the ingress of its chaotic or archetypal essence of form.

This essence, which is continuously becoming the inner souls, and also by plus condensation the ova-embodiments of nature's infinitude of interforms, is to nature's objective organism what man's mind or metaphysical atmosphere is to his objective organism; viz., its entirety, its inner soul, and its every needed embodiment on its every plane of development. As the over-soul of nature, it is necessarily pre-existent. In like manner, the over-soul of man's body pre-existed as the essence or spirit of every form in nature to which it became nutrient, thence ex-nutrient or fruitful: hence, when aggregated as his body and its inner-soul or animating spirit, it inherits all its pre-existent tendencies. These tendencies are man's inherent desires to re-ascend as form through every plane of comminuted substance whence the essence of his selfhood descended. As this is effected by growing and outgrowing his consecutively more refined embodiments on each, from the essences indigenous to each, his *natural* aspirations are in the direction of continuously improving conditions.

Although his specific ancestors precede him in the order of their earlier advent on our plane, yet his thoughts outreach after that which predominates in his constitution, whether it be in the supposed direction of angelhood or demonism.

And, whatever his plane of bodily existence, his mind, which is essentially ubiquitous, is continuously attracted to and by such minds as afford or accept that which his mind craves or has in excess. Interchange of thoughts between man's present bodily plane and his pre-existent and *post mortem* planes is necessarily continuous under *natural* conditions as well as under those considered *special* "inspirations," the practical uses of which in human economy are matters to be judged of, just as the opinions of his fellow-men are accepted or rejected as their practical values determine.

21. Now, inasmuch as each human selfhood is of necessity a compound of quantitative equivalents of centrifugal and centripetal, or female and male germs, it is readily seen that man's physical and metaphysical senses represent respectively the maternal and paternal principles; or, in other words, his nuclear or physical organs are what his atmospheric or metaphysical germs of thought or representative essences have become.

Hence the exclamation of the great philosopher of Nazareth, "My Father and I are *One*."

Paul reveals his conception of this oneness when he says to his brethren, "All principalities and powers, things earthly and things heavenly, all are yours." He also expresses his belief in the substantiality of thought when he says, "Faith [that is, the sensations which belief produces] is the *substance* of things hoped for, and the *evidence* [of the existence] of things not seen." The

paternal or atmospheric principle is the essence, or spirit, of substance. "The Father is a *spirit*," whereas the maternal or nuclear principle is the aggregation of substance as *form*.

The terrestrial atmosphere was "void," as such, when it existed archetypally within its ancestral spheres: hence "Adam, or red earth, was first formed." And it must have been formed myriads of ages before its substance attained the plane of human development, when "woman brought man [or sin] into the world."

Believers in a personal Creator are blinded by the idol they set up between themselves and nature, hence cannot perceive the unity of the two sexual principles — the plus maturity and minus complexity of the male or atmospheric department, and the plus complexity and minus maturity of the female or nuclear department — as the selfhood or contradistinct existence of every inter-individuation of nature. Could they but perceive that the essence or spirit of substance diffused as specific and nutrient germs within parent forms, proximate and ante-proximate, must needs become nucleated as later forms, whence these same germs, specific and nutrient, are outborn from their ova-cmbodiments into their common atmosphere *in their organic or aggregate capacity as spirit forms*, they would no longer assume that the archetypal or atmospheric essence of things should be eternally glorified as an especial spirit or personal God, while the human forms it becomes are cursed through all time, and subject to eternal punishment, because they manifest the tendencies their substance inherited in a pre-existent state. The metaphysical or atmospheric essences fruital to pre-existent nuclear or physical forms that become man's nuclear or

physical organism, and its atmosphere of metaphysical germs of thought on the embryonic plane, are the immature or female counterparts of the later thought-germs that become nutrient to his physical and metaphysical organs of sense on the mature plane.

22. These essences of the substance of things in becoming his body and mind, his soul or selfhood, not only *create* his senses, but they *ask* and *answer* all his questions, in the sense that it is the alternate minus and plus pressures of the earth's atmosphere, the sum of those of its forms of substance, that *create* the needs or vacuos that condition the forcing in therefrom of that which satiates or fills them. It is readily seen that he who recognizes this diffused impersonal essence of form as a personal creator, and worships it as such, worships himself.

There are very many other idols between man and nature, beside the religionist's ideal of a personal God. Bacon's prophetic perception, that, "when man shall have outgrown all his idols, he will understand nature," was in advance of his mental status.

In claiming that the inductive process of reasoning is "superior" to the deductive process, he simply accepted what his own predominant perceptive agents, those which predominate in his sex, perceived. And it was this *ideal pre-eminence* of his own mental status that blinded him to the perception that these inseparable processes are of necessity co-equally efficient, but in opposite directions, like all conjugated action and reaction.

It was Locke's persistent *idea* that thoughts are non-substantial or "immaterial" that blinded him to the perception that the constituent essences of objects are

no more *real* than their ex-constituent or fruital essences, through whose "modes of motion" their essential qualities are revealed, and which, when subjected as nutriment by man's organs of sense, become his perceptive agents.

Although there has been much bitterness and strife between rival theorists with regard to their respective ideas on scientific and philosophic questions, yet they are utterly insignificant when compared with the demoniac persecutions and hellish tortures inflicted by ecclesiastic authority upon those who rejected the religionist's personal God, or refused to obey his will as defined by his self-chosen and self-inspired priests. These horrors committed in the name of religion are the chief topics of history from its birth to the present; and the opinion is universal, that they have been and still are the crowning curse of humanity. And yet man's heart is inspired with loves and hopes that reach out, not only toward his fellow-man on our present plane of being, but his love follows his beloved ones to a hoped-for happy hereafter. He cannot give up his religion.

23. Now, we assume that the time has fully come when the line of demarcation between the religious sentiments innate as the conscience of man, and his egotistic love of power and praise, should be drawn. That the latter, without exception, underlies every system of worship, all of which are purely idolatrous, and beneath whose triumphal car poor humanity has been crushed from time immemorial, is self-evident, while the purest love and highest good known or knowable result from the intuitive promptings of the former. The time has come when the higher faculties should attain the predominance so long maintained by the lower. As the

lower conditioned the development of the higher, it was necessary that the "tares and wheat should grow together until the harvest." The love of self manifest through the appetites and passions is the basic standard by which the emotions and reasoning faculties measure the needs and demands of others; or, in other words, *self-love* is the basis of every other love. To uproot it would be the uprooting of every more complex faculty. Evidently the harvest is now sufficiently advanced, and the "tares" sufficiently desiccated, to gather into bundles and burn, leaving the "good seed" to flourish unencumbered. The fruits of man's love of power and praise, and the fruits of his love for his fellow-beings, are readily traced in the effects they respectively produce upon humanity the world over. The former, assumed to be the revealed sentiments of a personal God, are manifest in the general denunciation of mankind as "wholly depraved," and utterly unworthy of either favor or mercy, and in the required servility of all to this God's will, as defined by his "inspired" earthly ambassadors. The latter are manifest in the earnest efforts of those who regard it as their highest and purest self-interest to elevate their fellow-beings by securing for them the most thorough mental culture and the most favorable physical conditions possible, with the fullest recognition of their "*equal* right to life, liberty, and the pursuit of happiness." As reason nears its majority, it ignores the puerile assumptions of its childhood, and rebels against their unreasonable requisitions.

24. Now, the first step toward aiding the progress, falsely termed the reformation, of humanity, is to make an impartial diagnosis of the inharmonies consequent

upon its immaturity, thence to ascertain what is necessary to its healthy maturation. This diagnosis, if impartial, will at once settle the question whether or not the development of nature is in accordance with the tendencies inherent in the substance involved in its constitution, usually termed "the laws of nature."

In the childhood of our species the "warrings of the elements" surrounding the earth, now known to be the tendencies of their substance toward specific equilibrium, were regarded as the warrings of the sun-gods by whose combined rays it had been "created." The thunderbolts of Jupiter,—the unseen paternal God,—and other disastrous disturbances, were expressions of his anger against the greater apparent influence of the visible or maternal sun-god.

The production of noxious vegetables and animals was accepted as evidence that the earth was cursed; and the fact that the visible sun crept serpent-like around the earth, crossing and recrossing the equator annually, was accepted as evidence that its creeping condition was a penalty for illuminating the earth, and receiving the adorations of mankind, which were due to the invisible Father-Sun. Hence its offspring, the earth, and all its products, were depraved, especially the human species, because of their desire to be enlightened.

It is needless to present proofs that the more profound reasoners of our age, those whose minds have become matured by the "inspiration of free-thought," ignore these assumptions *in toto*.

Such minds are leaders in striving to separate Church and State, on the principle that statesmanship consists in *protecting* and *assisting* the people against every thing detrimental to their common interests; whereas the

Church regards it as the first and highest duty of humans to glorify its ideal of a personal creator, on the assumption that this is the only means by which they can turn away his wrath, and escape eternal punishment in the hereafter. While statesmen and churchmen are alike *professedly* striving for their best interests, the wealth of the masses of wealth-producers is decreasing in the ratio the wealth of State and Church increases.

This common effect proves conclusively that the laws of State are of necessity founded upon the religious sentiment of the people, and that the efforts to secure the aggrandizement of State and Church by their respective rulers are but expressions of their own love of personal aggrandizement, and of the power and praise that result therefrom.

25. While the rulers of Church and State are vying with, and at the same time aiding each other in attaining ever-increasing wealth and power, and in the indulgence of self by ever-increasing extravagance, which their position as rulers enable them to do,—the expenses of which are all drawn from the masses of wealth-producers through appeals to their self-respect and their fear of future misery, and through tariff and taxation,—the question naturally arises, How will this policy end? or, “What will the harvest be?”

As the tendency of this policy is toward the ever-increasing poverty and misery of the laboring classes, the time is at hand when further endurance is impossible. The time has come when the cry for a better policy cannot be hushed by the counter-cry of *infidelity* and *communism*. The cry for bread by these classes, the fruits of whose labor supply the needs of the entire

human family, can in no way wrong the I AM of Infinite Being, whose consciousness of needed supplies is necessarily that of the conscious beings that constitute it, just as man's consciousness of needed supplies is that of the sentient entities that "live, and move, and have their being," within him; his hunger and satiation being simply the sum of theirs. On the contrary, this cry of the starving masses is *the cry of the Infinite*, the tendency of whose omnipotent power is forever in the direction of equilibrium and essential harmony. In like manner, their denunciation as communists, and other unpopular names, at every demand made for better legislation,—just what the State needs, its welfare and happiness being that of its entire constituents,—is the same in effect as the cry of infidelity.

These counter-cries are not the voice of the people for their common protection, but that of the fat-salaried officials of Church and State and their carping minions, who, as masters and favorite servants of the gorgeous temples and bountifully-supplied domiciles of Church and State, simply ridicule the ineffectual pleadings of houseless laborers at starving wages for more equitable laws.

As evidence of their detrimental influence in national policies, we find the worshippers of the ideal of a personal God the bitterest opposers to the abrogation of the death-penalty and other revengeful and inhuman punishments; while the so-called infidels and even atheists, who have no belief in a conscious after-death existence, stand in the front ranks of reform as champion friends of their fellow-beings the world over. The absurdity of idolatry is especially manifest in the so-called religious duty of building high-steepled houses

dedicated to the worship of Almighty God, who, as such, needs neither shelter, food, nor raiment; while it is well known that our helpless fellow-beings are perishing by thousands from *want* of shelter, food, and raiment.

26. Now, inasmuch as there can be no line of demarcation between true patriotism and religion,—man's innate consciousness of right and love of goodness, or human harmony,—the same policy is applicable to both.

In dealing with principles which are essentially infinite in their bearings, the apparent, or assumed, or delegated rights of individuals must be lost sight of. It is better to be a martyr to the whole truth than to suffer equally for striking at the branches of this deadly upas, whose poisonous breath permeates the entire body politic, instead of striking at its root.

Advocates of a better political economy have tried the pruning process for ages, the chief result being a multiplication of its branches. In civilized human economy *mutual protection* and *mutual assistance* in the common struggle for life is the ostensible basis of patriotic and religious jurisprudence.

Let us inquire whether, or not, this fundamental principle is exemplified in the laws and customs of State and Church. In the first place, at least one-half of the world's wealth is under the control of their representatives,—the officials of State and Church.

We will next inquire if this pecuniary and official power is, or is not, exerted to protect and assist mankind *equally* in their pursuit of needed supplies. In our inventory we find untold billions of wealth devoted to the worship of an ideal of supreme authority, and

as much more to the idolatrous homage of the vicegerents of this supreme ruler, the rulers of states and nations, and their dignitaries, civil, ecclesiastic, and military. Not only is all this wealth untaxed for its own maintenance, but that which is continuously being added thereto to meet the ever-increasing demands for improvements in the *style* of worship, such as "praise-meetings," and "eulogistic" gatherings, all of which, like the original stock, is drawn from the ever-lessening resources of the people by increasing taxations, and by unjust tariffs, restrictions upon the interchange of commodities. As these officials, when emergencies demand, create untaxable governmental wealth with which to pay their own self-determined munificent salaries, which increases the tax-rate of taxable properties, and the prices of current commodities, they lessen the people's pecuniary power in the degree they increase their own.

The capital invested in the various enterprises necessary to produce the various commodities of life, without which accumulated fruits of labor these industries could not become the laborer's chief support, is by no means the cause of the lessening pecuniary power of the laboring classes. The laborer who fights such capital is fighting himself, just as he who worships is worshipping himself. Neither perceives that whatever he does is a part of himself, the fruits of which, whether good or evil, characterize his selfhood. Worshippers and warriors are alike blind to the fact that they represent the appetites and passions inherited by humanity on its brutal plane of development, and also to the fact that it is themselves that are continuously sowing the seeds of discord which they are continuously striving to uproot.

The world's idols, whether regarded as heavenly or earthly, are, as rulers, just what their worshippers and subjects conceive them to be. Stripped of the attributes and the official and pecuniary powers bestowed upon them by the people ruled, they would be simply myths and ordinary people. It is by the sacrifice of their natural right to equal mental culture and to equal advantages in attaining and retaining the physical comforts of life, that their subjects create and tolerate the "divine rights" of these assumed vicegerents of a personal God, as well as the means by which they attain and maintain the superior mental culture and physical conditions that constitute their pre-eminence. Deference and respect are due to worthy sovereigns from their subjects, on the same principle that like attentions are due to worthy parents from their children, which, when duly acknowledged, are mutually elevating, while servile homage and unmerited laudations are mutually degrading.

The assumption by royal rulers that their right to the service and homage of their subjects is *divine*, like that of the heavenly Ruler they profess to represent, and not *returns* for favors or aids conferred, is the crowning curse of royalty.

To question these rights is assumed to be treason and heresy combined, inasmuch as it is questioning the rights of the prototypal sovereign.

Inasmuch as earthly sovereigns and their officials, civil, ecclesiastic, and military, are nothing more or less than human beings with certain distinctions and conditions conferred upon them, or tolerated by their fellow-men, their claims to personal superiority are baseless, while their practical jurisprudence proves conclu-

sively, that like the exacting, flattery-loving, and jealous God they practically imitate, they desire power and praise rather than the welfare and happiness of their subjects. Nothing can be more evident, from this practical stand-point, than the continuance of the present inharmonious state of human affairs until reason dissipates the predominant religious conviction that there is such a personal God as his assumed personal and divinely delegated vicegerents in State and Church represent. And so long as this conviction predominates, just so long will worship and warfare counteract every effort to secure better policies.

And no step can be taken in this direction until the discovery is made that the evils of State and Church are inseparable, and that neither can be removed only as the people that constitute these mutually sustained hierarchies shall remove the "delegated" powers by which they are produced.

As the "divine rights" of rulers in State and Church, like those of their prototype, are alike of human creation and delegation, the first step, or half the journey, toward better policies is the elevation of their worshippers and warriors to a higher plane of mentality through the "inspiration of free thought." The roads during the rest of the journey toward freedom from idolatry and its attendant degradations, are increasingly level in virtue of their increasing self-respect. The end nears in proportion as man's faith in man increases through increasing disbelief in human depravity and a corresponding increase in the belief that the evils of our present life are the natural and inevitable effect of the immaturity of our species and of our sphere of existence. In the earlier stages of transition, youths out-

grow parental restraint more rapidly than they attain self-restraint. The present unparalleled waywardness of society in civilized countries is evidently due to a more rapid outgrowth from belief in an after-death heaven and hell, "prepared for the righteous and wicked," than growth in the belief that heavens and hells, here and hereafter, are necessarily self-constructed.

27. Now, let us imagine a system of politico-religious economy that will effect and protect the production and exchange of commodities necessary to human life and comfort in different climes,—a system that will at the same time cultivate and elevate the emotional and reasoning faculties of the human family in the direction of the greatest harmony. The present rapid diffusion of citizens of different nations is not only producing a corresponding diffusion of their different religious sentiments and theories generally; but the diffusion of commodities indigenous to different climes, or manufactured by different nations, is rapidly bringing about radical changes in their systems of exchange; while the mechanical powers of the imponderable agents in nature bid fair to become as universal in their practical application as in their elemental diffusion. Now that the vibrations of sound through the agency of the telephone and microphone are becoming to the ear what the vibrations of light are to the eye through the telescope and microscope, a common language of sounds, founded on the phonetic system of spelling, is as probable as were picture-painting and printing by light, a half-century ago.

The rapid spread of the metric system of weights and measures, and of the decimal system of reckoning generally, indicates the growing necessity of a common sys-

tem of free exchange and interchange in the family of nations. Such a system—if equitable, or modified to accord with their respective needs, physical and intellectual—would be mutually beneficial on the principle that what is best for each person or nation in the abstract is best for every other person or nation. This diffusion of the sentiments, laws, and customs of people representing different stages of physical and metaphysical maturity, is as natural and as indispensable as the diffusion of gases of different degrees of mobility; and the effect must of necessity be and continue to be similar. Although, in the case of both, there will be, as there has been in all past ages, a vast but an ever-lessening amount of local lightning and thunder, elemental and human, yet the general tendency of these physical and metaphysical forces is continuously in the direction of essential harmony.

The outgrowth of humanity from its primal state of brutal selfishness was and is as natural and as inevitable as the development of consecutively more complex elements, and their aggregation in consecutively more complex forms, mineral, vegetable, and animal, as is revealed in the earth's consecutively later strata. These stratial revelations are positive proof that the pre-human state of our world was purely brutal, rather than that of innocent beatitude, which it is assumed humans destroyed by the introduction of sin and death, their penalty therefor being the condemnation of the entire race to an after-death punishment by eternal burnings, a never-ending second death of indescribable agonies.

Now that indisputable geologic evidence proves conclusively that somatic death was the result of natural

causes prior to the possible existenee of human beings, and that the retrogression of our world to its pre-human condition is as impossible as it would be degrading, their further prosecution and persecution for an impossible crime should be at once and forever stayed by substituting therefor a policy ealeulated to develop their higher faculties,—those peculiar to humanity.

In no department of nature is the principle that like procreates its like, or that what is sown will become the harvest, more clearly exemplified than in human eulture. The worse than beastly eruelties inflicted upon man, not by nature's ruling spirit, but by his fellow-man, on the assumption that he is "totally depraved," and must be subjected and restored to "divine favor" by arbitrary repentance and penalties, has continuously developed his worse than beastly passions.

Now, let us imagine the effects of a poliey based upon the assumption that there is a supreme Intelligencee that sustains the same relations to the objective universe that man's intelligence does to his mierocosmie organism. As man's happiness is proportional to the healthy or harmonious development of the various entities that "live and move, and have their being, within his organism," by supplies adequate to their respetive needs, the same is necessarily true as regards the happiness or harmony of the supreme Intelligence, the sum of the intelligences that "live and move, and have their being," within the universal organism.

Aeeepting this belief, which is rapidly becoming popular, despite its denunciation as dishonoring the Infinite, whose service is claimed to be man's highest duty, we assume that those who serve humanity best, best serve

the Infinite. Following out this principle, we claim that if the service, the reverence, and love now and hitherto bestowed upon an ideal of infinite good were transferred into serving, reverencing, and loving the good in humanity,—the highest good known or knowable,—the growth of goodness would rapidly exterminate the evil fruits of the former policy. It is only a question of time when this policy will predominate, inasmuch as the development and dominance of man's emotional and reasoning faculties, those peculiarly human, are as inevitable as the development and dominance of the human species; the evolution of more refined and more complex elements, in virtue of the earth-sphere's outgrowth into higher solar strata, being the nutrient or creative cause in the case of both. Just as individual man in infancy is governed by his appetites, later by his passions, and still later by conscience and reason, so, in its infancy, the race was governed by its purely brutal appetites, thence by its passions, preparatory to the growing predominance of the emotional and reasoning faculties. Nature's development is necessarily progressive in the aggregate, notwithstanding the ascension and descension of our sphere to its aphelion and perihelion altitudes within the solar sphere's ensphering sphere during the revolution of its equinoxes. Owing to its vast difference in distance from the solar system's sun, and the proportional difference in the mobility of its nutrient essences at these higher and lower altitudes, its traditional golden and brazen ages, including the beatitudes of Eden and the miseries of Hades, are by no means destitute of presumptive evidence.

All that is necessary to uproot idolatry and war is

the utter refusal of the worshippers and warriors involved to sustain them as they have hitherto done. Further sacrifice of their self-respect, their lives, and their pecuniary power, will simply prolong the minority of their own faculties: it cannot retard the natural development of the race by outgrowth to consecutively higher planes of thought.

As higher thoughts are attainable only through the exercise of the higher faculties, all revolutions carried on by physical or brute force are as impolitic as they are degrading. This, because the exercise of the brutal passions not only develop thoughts that pertain to the brutal plane in those directly engaged in the worse than brutal slaughter of their fellow-beings, but indirectly in the entire body politic, thence by diffusion in every department of society the world over. When radical changes in governmental policies become inevitable, every means calculated to elevate public sentiment should be used with unflinching perseverance; while such as are calculated to debase it should be scrupulously avoided. This is the only safe criterion. For example: it is claimed by certain professed reformers, that the plurality of wives, in consequence of the enormous slaughter of men in war, justifies the "plurality of wives;" that is, legalized murder justifies legalized adultery. This is a monstrous stride backward toward the brutal plane. Another class of reformers claim that a community of domestic interests and of marital relations, or perfect social freedom, is justifiable, on the assumption that the will should be perfectly free. And still another class claim that sexual relations should be determined by perfect freedom of the passions.

The tendency of these latter claims are calculated to drag humanity below the bestiality of the higher species of brutedom, whose monogamous sexual matings for the propagation of their species, the mutual chastity of their affections being manifest in the numerical equality of the sexes, are typical of what the matings between the sexes in the human species should be. These classes, including their fellow-reformers engaged in corrupting society by precept and practice, and by disseminating the impure and strife-engendering sentiments of others, mistake the freedom of the will and of the passions for freedom of thought.

Their thoughts prove that their higher faculties are slaves to their appetites and passions; whereas free thought necessitates perfect freedom of the intellect. The debasing influence of pandering to the appetite for intoxicating beverages is especially exemplified by the exercise of the brutal faculties when reason is paralyzed thereby. As nine-tenths of the crimes in civilized society are attributable, either directly or indirectly, to the influence of intoxicating liquors, which evil influence is quadrupled by the legalized crimes committed in the "punishment" of the criminals, the debasing effects upon society are incalculable, compared with which the evil influence of the various phases of prohibited gambling sink into insignificance.

No arguments other than these continuous proofs are needed to show the imperious necessity of laws calculated to protect, not only society generally, but to protect the criminals especially, on the principle that the ruling powers of state governments represent the *maturity* of parental guardianship. All these evils are remediable through the exercise of the higher faculties,

which, as they mature by free exercise, outgrow the puerile idea that there can be such a thing as "lost souls," or "sinners given over to hardness of heart." It is the utterly unwarranted belief, that an equivalent of punishment inflicted upon offenders according to their disservice is justice, rather than lack of sympathy for their sufferings, that has rendered reason blind to the fact that the same brutal faculties exercised in the infliction of torture, whatever its phase, are developed in the victim, while those of the inflicter and of every one accessory thereto are rendered proportionally more brutal ; the sensibilities of the humane being correspondingly outraged. To those who recognize justice as right doing under every condition, the punishment of offenders otherwise than by reformatory restrictions is a crime committed, not only against the criminal, but against society generally.

For example, our present governmental policies license the manufacture of and traffic in intoxicating beverages, thereby wrong society morally through the crimes committed under their influence, and wrong it pecuniarily by taxation to meet the expenses of constructing and sustaining the local hells wherein to punish the criminals manufactured through criminal license, and who, if properly protected and cultivated, would be peaceful and useful citizens. The non-prohibition by governmental statutes of every business enterprise or profession, whether or not popular, that is calculated to debase society directly or indirectly, is a criminal neglect of the ostensible duties of governmental power.

But this criminality, in its ultimate analysis, is that of the people who create, assent to, or tolerate the *form*

of government and the officials that represent its jurisprudence.

To be protective, the form of government must be parental ; and, if parental, the emotional or religious, and the reasoning faculties will be equally represented in its statutes and in their official administration generally. That is, the equal efficiency of the maternal and paternal principles involved in the genesis and sustenance of every form of substance must needs be equally efficient in the creation and maintenance of every *form* of government. The male sex has no power to change this law of nature. It never has been, and never can be, changed by any possible enactment. This, because these essentially inseparable principles are equally efficient in the constitution of both sexes, although the greater development of the earlier or instinctive faculties of the species characterize the male sex ; while the greater complexity of the later or emotional faculties characterize the female sex.

The male principle being the first and the last, and the female principle intermediate, man's more developed appetites and reasoning faculties are manifest as the paternal principle in governments ; while woman's more complex emotional or intuitional faculties are manifest as the maternal principle.

This equivalence of force in the counterpart faculties of the species is progressively maintained on its successive planes of development by the continuous transformation of lower organic proclivities into higher uses. For example : the decreasing physical or animal power of humanity inherited on the brutal plane is its transformation into increasing metaphysical power on the human plane. In like manner, its childish worship of

the sun, the most magnificent and munificent object cognizable, thence of the unseen Father-Sun as a higher good, has become transformed into higher and higher religious conceptions, until they have culminated in the belief that the Supreme Good is the creative and sustaining essence or spirit manifest, not only as the life and light of these nearer sun-gods, but also that of the entire stellar or heavenly hosts within the cerulean vault. If, as we are forced to admit, this is the highest conception of Supreme Good possible to our plane of perceptivity, then, by parity of reasoning, the life and light manifest as the physical and metaphysical powers of humanity — the highest product of the heavenly host conceivable on its present plane — is the highest *practical good* applicable to its present plane. Now, inasmuch as these powers of humanity are improvable only as regards their conditions, we assume that the reclamation of the millions of victims to our criminal policies, — domestic and national, — now incarcerated in prisons and dungeons, shut out from every possible means of improvement other than the development of their brutal passions by the brutal treatment to which they are subjected, can be and should be effected, just as the reclamation of animal and vegetable species that have deteriorated through neglect is effected, viz., by cultivating the good qualities inherent in their constitution, thereby transforming their so-called evil proclivities into higher uses.

As their reclamation and the higher culture of the race generally require rulers and teachers in whom the higher faculties predominate, all others; domestic and national, should be excluded from participating in this sacred mission.

Although mothers and fathers are the natural guardians of their children, yet, when they are unfit to rule and to teach them as their highest interests and that of society require, their rights as such should be abrogated the same as those of governmental officials who are unfit to guard the interests of state.

The rights of children to such culture as will render them self-provident and worthy citizens are the common rights of society: hence it is the duty of governments to protect society in this direction. The cost of providing establishments where incompetent parents and their helpless children could be self-supporting, and their better faculties cultivated, under the supervision of competent officials, would be a hundred-fold less than the cost of providing prisons and houses of correction wherein to punish them for not being able to control their inherited or cultivated appetite for intoxicating beverages, under whose influence they become criminals, while at the same time they are suffering for the healthy food which has been transformed into these poisonous beverages by governmental license.

The first question presented is, How can better governmental officers be secured, when the best men, such as will not pander to the appetites and lower passions of the constituency, cannot be elected, and women, in whom the religious or persuasive element predominates, are universally rejected?

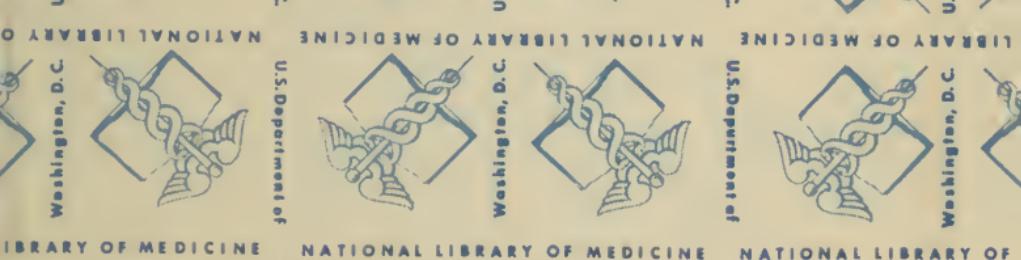
As ecclesiasticism has proved itself to be as powerless to produce national harmony as physical force, Where is the remedy?—where, but in the heart of humanity? never from external force, save when moulded by, and re-expressed through, the affections, of which woman is the predominant representative. Kind words and

loving deeds, compared with angry threats and pitiless blows, are as sunshine to the boisterous destruction of wind-storms.

The functions of the appetites and passions are the antagonisms of life, in the transformation of which to higher uses the affections attain their highest happiness. The fact that the *wife* has driven intoxicating beverages from the presidential mansion, not by physical force, but by womanly firmness, is significant of what might be done by a corresponding element in national congresses and state legislatures.

THE END.





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